THE IMPACTS OF CLIMATE CHANGE ON TRIBAL COMMUNITIES

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON INDIGENOUS PEOPLES OF THE UNITED STATES

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

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CONTENTS

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Tuesday, February 12, 2019
U.S. House of Representatives
Subcommittee on Indigenous Peoples of the United States
Committee on Natural Resources
Washington, DC

The Subcommittee met, pursuant to notice, at 2 p.m., in room 1324, Longworth House Office Building, Hon. Ruben Gallego [Chairman of the Subcommittee] presiding.

Present: Representatives Gallego, Soto, San Nicolas, Haaland, Case, Grijalva (ex officio), Cook, Young, and Hern.

Mr. GALLEGO. The Subcommittee for Indigenous Peoples of the United States will come to order. The Subcommittee is meeting today to hear testimony on the impacts of climate change on tribal communities.

Under Committee Rule 4(f), any oral opening statements at hearings are limited to the Chairman and the Ranking Minority Member. This will allow us to hear from our witnesses sooner and help Members keep to their schedules.

Therefore, I ask unanimous consent that all other Members' opening statements be made part of the hearing record if they are submitted to the Subcommittee Clerk by 5 p.m. today or the close of hearing, whichever comes first. Any objections?

Hearing no objections, so ordered.

STATEMENT OF THE HON. RUBEN GALLEGO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. GALLEGO. Good afternoon, and welcome to the first hearing of the Subcommittee for Indigenous Peoples of the United States in the 116th Congress.

We adjusted the name of this Committee to emphasize our renewed and singular focus on the more than 2 million indigenous peoples that we are charged with representing. As the only Committee with exclusive jurisdiction over these issues in the House of Representatives, we have a great responsibility.

As a body, this Congress can make countless improvements to the lives and well-being of indigenous peoples, and that starts here in this Subcommittee, where we will spend the coming months seeking solutions to address the issues these communities have identified.

As a Subcommittee, we will: examine the significance of tribal sovereignty and self-determination; strengthen tribal consultation and honor our Nation's trust responsibilities; ensure environmental justice for tribal communities; support tribal control of their own lands and resources; work closely with tribes to identify and protect sacred sites; uphold our obligations to improve the health, safety, and delivery of justice to tribal people; and, last, ensure that all

indigenous peoples and tribal governments are treated fairly, as co-equals, with dignity and respect.

We have a lot of ground to cover, and I look forward to working with my friend and fellow Marine, Ranking Member Cook (Oorah!), and the rest of my colleagues, on addressing these and other pressing issues.

Today, we will focus specifically on the impacts that climate change is having on tribal communities. These communities are on the front lines of the climate change battle, and despite contributing almost nothing to climate change, they face some of the worst impacts. From floods and wildfire, to drought and rising sea levels, indigenous peoples face existential threats to their traditional way of life, including disruptions of subsistence hunting and fishing, as well as their commercial activities and tourism enterprises.

This is especially true for tribes along coastal areas, who are already seeing changes in their lands, including the Quinault Nation, whose people live on the front lines of extreme weather risks, from flooding to tsunamis.

These climate-related disasters are forcing indigenous communities to make some very heartbreaking choices: the Tohono O'odham Nation, who had to resort to FEMA for disaster support after hurricanes caused severe flooding; or the Newtok Village in Alaska, who had to choose between relocating their entire community or losing access to safe drinking water.

And these are not isolated incidents. Throughout Indian Country, the effects of climate change are evident, and they are increasing at an alarming rate.

I would like to also remind us that all the challenges facing tribal communities are a mere microcosm of the larger climate change picture and that the harms of inaction in Indian Country will affect us all.

Tribes are stewards of millions of acres of trust and federally recognized land that provide habitat for more than 500 endangered species, contain over 13,000 miles of rivers and nearly 1 million lakes. They also have stunning national treasures, like Antelope Canyon in my home state of Arizona, that provide tourism opportunities for visitors from near and far, but are at risk of erosion and other harms as climate changes. That is why it is important that we work hand-in-hand to overcome the collective challenges that we will face.

Climate change is ignorant of reservation boundaries and treaty land maps, and yet indigenous peoples are often left to fend for themselves in addressing the issues that arise—and that is just not right. We are all in this together.

The cultures, spiritual practices, and economies of many indigenous peoples have already evolved to adapt to local environmental changes. This knowledge, accumulated over generations of historical and cultural connection with the surrounding environment, is integral to this Committee's work.

In my view, this makes us natural partners in developing a climate adaption strategy, both on tribal lands and for the surrounding regions. This Committee's partnership with tribes to address climate change and other issues affecting Indian Country starts today.

To our witnesses, thank you for traveling long distances to share your experiences and educate this Committee about the impact that climate change has on your community. I look forward to hearing your testimony. I hope that our Members not only identify with your story, but also learn from you and your expertise as we deal with ways to address climate change head-on.

[The prepared statement of Mr. Gallego follows:]

PREPARED STATEMENT OF THE HON. RUBEN GALLEGO, CHAIR, SUBCOMMITTEE ON INDIGENOUS PEOPLES OF THE UNITED STATES

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I look forward to your hearing testimony, and I hope that our Members not only identify with your story, but also learn from you and your expertise as we develop ways to address climate change head-on.

I now would like to recognize the Ranking Member, my esteemed colleague, Mr. Cook, for his opening statement.

Mr. GALLEGO. I would now like to recognize the Ranking Member, my esteemed colleague, Mr. Cook, for his opening statement.

STATEMENT OF THE HON. PAUL COOK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. COOK. Thank you very much, Mr. Chairman.

As the new Subcommittee Republican leader, I look forward to what I hope will be a positive 116th Congress as we work to address the issues facing Native American tribes and Alaska Natives.

I also want to thank the witnesses for being here today for this hearing.

Access to natural resources can be a lifeline to prosperity and opportunity for Native communities. That is why this Committee has focused in previous Congresses on providing greater local control and autonomy to tribes to develop and utilize resources on Native American land.

It is my hope that this Committee will continue along this path and avoid the temptation to erect barriers to responsible tribal resource management and use. Eliminating or sharply curtailing the ability of tribes to carry out resource extraction and development on tribal lands would be the wrong approach.

These sorts of proposals would devastate tribal communities that have built their economies around oil, gas, and, in some cases, coal resources. For example, one tribe relies on coal mining for 88 percent of its budget and would be left destitute by the new restrictions on coal production and use.

Even tribes without significant energy resources would be hard-hit by proposals that would increase the cost of coal, oil, and gas. Native Americans in the Midwest and Northern Plains, who already pay a lot to heat their homes, would be required to pay even more. Reducing the supply of reliable forms of energy would leave entire regions of the country facing energy poverty. For Native American communities who already face significant economic challenges, this result could be disastrous.

Census figures showed the 2017 per capita income for Native Americans to be $19,824, compared to $32,397 for the average American. And the Native American poverty rate is 25.4 percent, versus 13.4 percent for the rest of the country.

This Committee would do well to focus on innovative solutions to address pollution, promote jobs, and opportunity for Native Americans and Alaska Natives, and lower, not raise, the cost of energy in tribal communities.

Today's question—How can we reduce pollution and promote a healthier environment while protecting checkbooks and job opportunities?

In past opportunities, this Committee has explored and passed legislation providing tribes with tools to achieve responsible natural resource management and conservation objectives relating to climate change.

One of the best tools is scientifically sound active forest management undertaken by tribes with substantial forestlands. Tribes have proven to be excellent forest managers, creating healthy forests and removing dangerous fuel that contributes to deadly wildfires and the emission of enormous amounts of carbon dioxide and pollutants.

This Committee should explore why the Federal Government has not implemented measures enacted by Congress to promote tribal stewardship contracting in mismanaged or non-managed Federal lands.

When it comes to climate and energy, policies that impose a one-size-fits-all approach would not help tribal economies, especially when certain forms of energy are unreliable or come at great cost to tribal members.

Again, I look forward to discussing how we can find solutions and work together to improve the lives of Native Americans and Alaska Natives.

Thank you. I yield back.

[The prepared statement of Mr. Cook follows:]

PREPARED STATEMENT OF THE HON. PAUL COOK, RANKING MEMBER, SUBCOMMITTEE ON INDIGENOUS PEOPLES OF THE UNITED STATES

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Again, I look forward to discussing how we can find solutions and work together to improve the lives of Native Americans and Alaska Natives.

Mr. GALLEGO. Thank you, Ranking Member.

And I would also like to recognize our Committee Chairman, Congressman Raúl Grijalva, who has joined us today.

Mr. GRIJALVA. Thank you.

Mr. GALLEGO. Thank you.

Now, please let me introduce our witnesses for today.

First, our original invited witness, the Honorable Fawn Sharp, President of the Quinault Indian Nation, was unable to attend due to the weather in Washington State.

But we are fortunate that the Vice President of the Nation, Tyson Johnston, was already here in DC, so he will graciously testify in her stead.

I will also now recognize Member Don Young for the next introduction.

Mr. YOUNG. Thank you, Mr. Chairman. I was listening to your opening statement, and I was going to put my name on top of it. I think you copied my exact words the last time I chaired this Committee.

But I would like to introduce a witness, one of my constituents, Jennine Jordan. She is the Government Relations Liaison for Calista Corporation. She is an Inuit, and her family is from Unalakleet. I am quite proud of her efforts to try to bring forth messages from my Native community in the state of Alaska.

I yield back.

Mr. GALLEGO. Thank you.

Next, we will be introducing Dr. Shirley Buzzard, President of the Building Resilient Communities for Climate Extremes (BRACE) Institute.

And, finally, our last witness is the Honorable Verlon Jose, Vice Chairman of the Tohono O'odham Nation in Arizona.

Let me remind the witnesses that under our Committee Rules, they must limit their oral statements to 5 minutes, but their entire written statement will appear in the hearing record.

When you begin, the lights on the witness table will turn green. After 4 minutes, the yellow light will come on. Your time will have expired when the red light comes on, and I will ask you to please wrap up your statement.

I will also allow the entire panel to testify before we question the witnesses.

The Chair now recognizes Vice President Tyson Johnston to begin his testimony.

Thank you.

STATEMENT OF TYSON JOHNSTON, VICE PRESIDENT, QUINAULT INDIAN NATION, TAHOLAH, WASHINGTON

Mr. JOHNSTON. Thank you very much for the introduction and the opportunity to be here with you all today. I know President Sharp deeply regrets not being here, since she is very passionate about this issue.

My name is Tyson Johnston. I am the Vice President of the Quinault Indian Nation. I come to you today from Washington State, where my tribe is located in southwest Washington. We are a treaty tribe, a signatory to the Treaty of Olympia of 1856. We are also a founding self-governance tribe and believe in the tenets of self-governance and self-determination.

We currently manage 210,000 acres of forest and reservation land. We are also an ocean-navigating people and co-manage natural resources in the ocean and several of our river systems. Our villages primarily support themselves from fishing income and natural-resources-related work.

We also have taken a multi-layered approach to climate change, because this issue has impacted our community very hard and first in many different ways. We have been talking locally with our state partners and now here at the Federal level.

We are a place-based people. We are deeply committed to our land. It is incomprehensible to think about having to relocate from our sacred lands that make up our identity, but because of climate change and the issues that face us, we have had to consider options.

We have currently worked with the Federal Government to develop a master plan to relocate our village and essential infrastructure. This was funded in 2013 and fully adopted by the tribe in 2017, which has given us a blueprint to finally address the tsunami inundation zone that is up on the screen.

[Slide.]

We face several challenges moving to higher ground. A lot of this is related to funding, obviously. We have estimated, with our master plan, that in order to fully implement village relocation and the relocation of our infrastructure, it would cost anywhere between $150 million to $200 million.

Also, I mentioned earlier how we are a fishing community. We have had to declare several fisheries disasters. The best science and analysis that we have been able to look at have been

influenced by the climate change factors of the ocean conditions as well as the effects of terrestrial climates.

Being so close to the ocean, the Quinault Nation is on the front lines of all the American people who are dealing with the negative effects of climate change. Ocean sea level rise has really increased. We have been dealing with coastal erosion on our coasts and have seen that really speed up these last several years.

But, most importantly, I think the message I want to leave you with is that this is going to be affecting more people along the coast, and this is really our time to come together and think about what are the best options to protect the American people and set up our future generations for success.

We have taken many efforts, painstaking efforts, to mitigate this at our local level as the tribe, but we don't have the resources to fully implement that action without the support of our trustee and our Federal partners. We owe it to our future generations to be bold, actionable, and decisive when it comes to addressing this issue.

Again, I am looking forward to the questions from the Committee and offering expertise and support on behalf of the tribe to address this issue not only today but for future generations.

[The prepared statement of Mr. Johnston follows:]

PREPARED STATEMENT OF TYSON JOHNSTON, VICE PRESIDENT, QUINAULT INDIAN NATION

Good afternoon Chairman Gallego, Ranking Member Cook and members of the Subcommittee. I am Tyson Johnston, Vice-President of the Quinault Indian Nation ("QIN"). I want to thank the Subcommittee for holding this hearing on the impacts and challenges tribal communities face due to climate change. It is critically important for the Federal Government, as trustee to Quinault and other Tribal Nations, to examine this issue and work with tribal governments to address the challenges we face.

CLIMATE CHANGE TODAY ON THE QUINAULT INDIAN RESERVATION

The Quinault Reservation ("Reservation") is located on the southwestern corner of the Olympic Peninsula of Washington State and abuts the Pacific Ocean. Since time immemorial, QIN has relied on the waters of the Quinault River and Pacific Ocean for sustenance and survival. The village of Taholah is the primary population, social, economic and government center of the QIN. It is facing imminent threats from potential tsunamis and potential damage from the sea level rising.

QIN, as a signatory to the Treaty of Olympia (1856), has the reserved right of "taking fish, at all usual and accustomed fishing grounds and stations." This federally-protected treaty right guarantees every enrolled Quinault tribal member—now and into the future—the right to harvest any and all species of fish and shellfish, anywhere within the QIN's usual and accustomed area in perpetuity, subject only to restrictions intended to conserve the fisheries.

However, since 2015, many QIN members have experienced fish harvest levels that are significantly lower than they have been in previous years. Because of this decline, the Nation requested through the Department of Commerce and the National Oceanic and Atmospheric Administration a commercial fishery resource disaster be declared. The declaration was approved and QIN was awarded funding, however the harvest levels continue to decline because of water temperature change and deterioration of habit brought on by climate change. This decline has been nothing short of devastating for QIN as our tribal members depend on fishing for commercial, subsistence, and recreational purposes, as well as ceremonial and cultural ones.

Our Nation has had Models prepared by the Washington Department of Natural Resources show a potential of tsunami inundation of 40–50 feet in depth in most of the Lower Village of Taholah, well above the elevation of the tallest building in the village. A tsunami event at the Village of Taholah would be catastrophic for our

tribe, the loss of life and destruction of our infrastructure would compromise QIN government operations.

Historically, large earthquake/tsunami events along the Cascadia Subduction Zone have occurred every 300 to 500 years. The last such event happened in February, 1700, so the 300-year threshold has already been breached. Approximately 650 residents live within the tsunami zone in the Taholah Village. Important Quinault social and cultural institutions are located in the tsunami inundation zone and flood prone area (including the Senior Center, Head Start Day Care, the K–12 Taholah School, Community Center, fire cache, police station, jail and courts, Veterans Park, Taholah Mercantile, Fitness Center, Temporary Assistance for Needy Families, Housing Authority, Canoe Carving Shed, Enterprise Board, and the Museum, the repository of Quinault culture). On a typical weekday, at least 60 employees of the Quinault Indian Nation also work in the lower Taholah Village.

A comprehensive 2012 report was contracted by QIN to understand the effects of climate change on sea levels. The report, entitled "Relative Sea Level Change Along Quinault Indian Reservation Marine Coastlines," found that the combined effects of thermal expansion of ocean waters, vertical land deformation (e.g., tectonic movements), melting glaciers and ice fields and seasonal water surface elevation changes due to local atmospheric circulation effects will result in sea level increases that will substantially increase flood risks in the Lower Village of Taholah. The report noted that the changes posed by climate change, including increased winter precipitation, soil saturation and flow into the Quinault River, will compound and increase the coastal flood risks to the lower Village of Taholah.

Already, high tides, high winds and storm surge conditions have led to waves breaking over the seawall that protects the Lower Taholah Village from coastal surges. The seawall was breached in 2014, prompting a state of emergency to be declared. While the Army Corps of Engineers replaced the seawall, it is not a permanent solution. During minor storm events, areas around First Avenue in Taholah flood regularly with seawater.

The QIN determined through multiple public processes, including a General Council resolution (a vote taken by the entire Tribe), that enabling the movement of residents, businesses, and institutions from the lower village of Taholah to a new Upper Village Relocation Area was the only solution because of these threats.

This prioritization prompted the Nation to apply for a grant in 2013 from the Administration for Native Americans (U.S. Dept. of Health and Human Services) to prepare a plan to relocate the village to higher ground. The grant was received and resulted in the Taholah Village Relocation Master Plan ("Master Plan"). The Master Plan was adopted by the Quinault Indian Nation Business Committee (a governing body of the Nation) on June 26, 2017. The NEPA Environmental Review was completed through the Bureau of Indian Affairs and HUD.

THE PLAN TO RELOCATE THE TAHOLAH LOWER VILLAGE

The Master Plan document presents land uses, conceptual neighborhood layouts, design principles, suggestions for energy efficiency measures, preliminary development cost estimates, resilience measures and required zoning changes. Although the Quinault Nation isn't subject to state zoning requirements of the Growth Management Act of Washington State county (GMA), this Master Plan meets numerous goals and requirements of the GMA. This includes: community participation; concentrated development near transit lines and existing adequate infrastructure; encouragement of pedestrian travel; a range of housing choices; convenient access to services; and, water quality. The Master Plan was in part based on feedback received at community meetings and surveys. A Space Needs Assessment was compiled with input from every department at the Nation regarding future space needs.

The project area governed by the Master Plan is located directly to the east of the existing Administration Building on land ranging in elevation from 125 feet to 165 feet, well above the tsunami danger zone. The Roger Saux Health Center is the only existing building at this time within the Relocation Area. The Relocation Area is approximately 180 acres and is accessed by two roads from the west. The Relocation area is adjacent to development on higher ground that is served by adequate infrastructure. The Master Plan provides a blueprint for the future village, including housing, community facilities, energy facilities, a K–12 school, and park areas.

A primary goal of the Plan is to create a rural community comprised of residential neighborhoods around a central corridor of community facilities. The heart of the community will be the school, the Health Center, the Generations Building, a new Community Center, the Museum and the Mercantile. The Generations Building (Wenasgwella?aW in the Quinault language) will be the first building to be

constructed and will house the Head Start, Day Care and Senior programs; these programs serve the most vulnerable populations and were identified by the community as the priority programs to relocate prior to the Plan starting. The new Community Center would also serve as an evacuation center. As part of the Plan, a schematic design was done for the building with oversized restrooms and showers and storage for tents and cots. The Mercantile is the only store in the village and serves as a social hub for the village. The village has been laid out so that these community facilities are within a 5 to 10 minute walk of each neighborhood. To this end, new paths have been plotted and the existing Wellness Program walking routes connected to the new path network. The paths will enable connection back to the river and the ocean that the residents are leaving, as well as allowing easy access to the community services at the heart of the new village.

QIN expects substantial demand for housing in the Upper Village. The Census (2000) data indicates that during that period Washington State had an 8.7 percent vacant housing rate, while the QIR had a 1.8 percent vacant housing rate. Taholah's average household size is 3.68. The Quinault Housing Authority maintains a housing waiting list of families and maintains that if more housing were developed on the QIR, there would be increases both in off-Reservation tribal members who would apply for a new home, and on-Reservation tribal members that now share a home that houses two or more families, would apply for additional housing. There are over 125 families on the waiting list. Thus, the Master Plan was designed to accommodate those needing to move to higher ground and those seeking to move back to the Reservation.

Taholah is a rural community with limited public transportation options; high density residential housing would not be appropriate here, as it may be in larger towns. The Master Plan sought to create a walkable community, while retaining a rural feel and creating opportunities for a mix of housing types and sizes to serve the varying demand of residents. Each neighborhood is required to include a mix of unit type and lot size, so all segments of the population can be served throughout the Relocation process, with denser unit types and lot sizes closer to the center of the community (and likely bus stops) and density lessening toward the edges. This should allow for mixed-income neighborhoods. An effort has been made to include Quinault art in the new village and to engage Quinault artists in the integration of art and culture into the built environment. Low impact development for stormwater has been utilized to protect the salmon runs in the Quinault River. Resilience to disaster and sustainability have been included in the Plan to best determine how the concepts could be integrated physically into the new village.

A conscious effort was made to tailor the Master Plan to the community context. The context is somewhat different than other municipalities around Washington. The land for the village is owned by the Quinault Nation—private developers will not speculatively develop this project; some development will be undertaken by the Housing Authority, but most of the housing will likely be developed by individual landowners. These landowners will not mass produce homes where strict design guidelines can be applied. In many cases families will be installing modular homes or simple homes where design guidelines might be onerous. Thus, the Master Plan does not impose such guidelines on residents; it merely suggests energy efficiency measures homeowners should consider when constructing a home. Many homeowners require larger lots for storage of nets and boats, as they fish for a livelihood. Thus, the plan supports traditional rural lifestyles.

The Master Plan is also designed to concentrate development in Taholah as opposed to on scattered sites around the Reservation, creating a limited area of intensive rural development. The Plan creates neighborhoods of higher density than those developed on the Reservation during the past 50 years with a mix of housing, from large lot housing to tiny homes for those transitioning back into the community. This compact development will encourage pedestrian travel and convenient access to services in the new village.

MOVING FORWARD WITH THE MASTER PLAN

With completion and adoption of the Master Plan, the Nation has a blueprint for redevelopment of the village, safe from flooding and tsunamis that incorporates the vision of the community members, sustainable practices, culture, amenities and upgraded community facilities. Design has begun on the first building in the new village, the Wenasgwella?aW (Generations Building).

Wenasgwella?aW will house the Senior Program and children's programs (Head Start, Early Head Start and Day Care). The Nation is also in the process of designing the first residential neighborhood of the Master Plan so that there is a place for residents of the Lower Village to relocate as soon as possible. However, the

Master Plan has an estimated price tag of $150 to $200 million and the Quinault Nation will not be able to fully fund the plan. We will need assistance from our trustee, the Federal Government, to continue the Master Plan and to ensure that our citizens and government operations continue.

CONCLUSION

Again, thank you for allowing me to testify to the Subcommittee today on this critical issue to the Quinault Indian Nation. QIN is taking the necessary steps to protect our citizens from the effects of climate change, but we will need the Federal Government's assistance in doing this. I'm happy to answer any questions in person at this hearing.

Mr. GALLEGO. Thank you, Mr. Vice President.

The Chair now recognizes Jennine Jordan.

STATEMENT OF JENNINE JORDAN, GOVERNMENT RELATIONS LIAISON, CALISTA CORPORATION, ANCHORAGE, ALASKA

Ms. JORDAN. Hello, Chairman Gallego, Ranking Member Cook, and distinguished members of the Subcommittee for Indigenous Peoples of the United States.

My name is Jennine Jordan. I currently serve as the Government Relations Liaison for Calista Corporation, a regional Alaska Native corporation. Thank you for inviting me to provide a village perspective in this hearing and to discuss how climate change has affected Newtok, 1 of the 56 villages within the Calista region.

In addition to giving my statement today, I will be submitting additional written testimony for the record.

I am Inupiaq, and my family is from the Native village of Unalakleet, a remote community of about 700 people in the Bering Straits region. I am a shareholder of Unalakleet Native Corporation, my village corporation; Bering Straits Native Corporation; and CIRI Corporation, my regional corporations, each of which were created and mandated by Congress through passage of the Alaska Native Claims Settlement Act of 1971, which settled our Alaska Native land claims. I am also tribally enrolled with the Native village of Unalakleet.

I am here to tell you that climate change is affecting Alaska's rural communities. Erosion is the principal threat to the habitability of many Alaska Native villages. This is according to the Army Corps of Engineers.

The Arctic Sea ice extent that protects coastal communities is melting, and, as a result, waves and storm surges are accelerating erosion. This is a report found by the Government Accountability Office.

As a result of coastal erosion, my family's village, Unalakleet, is considered one of the vulnerable communities of Alaska. Unalakleet has been adapting to climate change by building seawalls and raising roads. In 2010, the U.S. Army Corps of Engineers spent more than $28 million on infrastructure for Unalakleet, armoring the beach with rocks and a gabion wall.

Despite these efforts, my family, my cousins, and the neighbors in my community see the shoreline armoring being chipped away daily. And some folks have moved their homes from town to the hillside, which exemplifies a gradual relocation of Unalakleet to the higher hills in response to climate change.

Throughout the state, local companies and Alaska Native corporations have pitched in to help communities battling erosion costs by climate change. Calista Corporation, for example, through its subsidiary, Brice, Inc., has repaired gabion walls and breakwater for decades for villages affected by climate change. We are currently doing work in St. George and at the Kivalina Airport in Alaska on this issue. We do this because we enjoy working within Alaska to rebuild communities in partnership with the state and Federal Government.

Newtok, a coastal village of 350 people on the Bering Sea, is one of the first communities in Alaska to migrate to a new site 9 miles away, Mertarvik. Newtok is currently threatened by advancing erosion caused by the Ninglick River adjacent to the village. This progressive erosion plus permafrost degradation and seasonal storm flooding threaten the very existence of Newtok.

Years of erosion studies show that Newtok must relocate because there is no permanent and cost-effective alternative for remaining at the current village site. According to the Army Corps of Engineers' estimates, it could cost up to $130 million to move the whole village.

Even though Mertarvik and Newtok are only 9 miles apart, relocation costs are high due to the fact that there are no roads connecting the two rural Alaskan communities together.

In 2007, the state of Alaska created the Subcabinet on Climate Change, identifying communities in the most critical need of support. The Subcabinet's Immediate Action Work Group identified Kivalina, Koyukuk, Newtok, Shaktoolik, Shishmaref, and Unalakleet as six communities in peril.

In addition, the U.S. Government Accountability Office identified 31 Alaskan communities that are threatened by climate change. Of those, 4 were considered to be dire: Newtok, Kivalina, Shishmaref, and Shaktoolik.

In 2008, I conducted a housing analysis for Newtok while I was an intern at the Denali Commission. The housing analysis was a product of the Newtok Planning Group, which was formed with state and Federal agencies and NGOs to coordinate relocation for Newtok.

These are all generally outlined in the strategic management plan, which is listed on the Alaska Department of Commerce, Community, and Economic Development's website. Many more specific plans are located there with information.

Numerous Federal and state hearings and reports have also been conducted on the relocation of Newtok.

Stanley Tom, the formal Tribal Administrator of the Newtok Traditional Council, testified on October 11, 2007, at the Subcommittee on Disaster Recovery outlining the steps Newtok has taken to move.

But their greatest need is for housing at the relocation site of Mertarvik. There is such a critical housing shortage in Newtok today that multiple families are living in a single-family home. The Cold Climate Research Center, a non-profit organization that specializes in building in Arctic climates, estimates the community needs a total of 105 houses in Mertarvik—39 more than the 66 houses standing in Newtok today.

Newtok Village Council and the Lower Kuskokwim School District received $1 million in funding from the Alaska Housing Finance Corporation to advance construction in Mertarvik by 2020.

The project will construct two state-of-the-art, high-energy-performance duplexes with solar photovoltaic panels. The duplexes will be the first housing constructed specifically to serve professional populations, including teachers, village public safety officers, and public health aides, in Mertarvik. These grants address our greatest need, which is housing.

Alaska's rural communities lack critical access to clean water for drinking, sanitation, and hygiene. The people of Newtok have been living without water or sewer systems for generations, so, to address this need, the United Methodist Committee on Relief awarded $943,000 to Newtok to install 21 in-home portable alternative sanitation system (PASS) units in Mertarvik, Newtok's relocation site. PASS units are innovative, low-cost alternatives to piped infrastructure that provide basic sanitation for handwashing, clean drinking water, and safe human waste disposal.

In conclusion, Alaskan permafrost, land that typically stayed hard and frozen year-round, has been melting due to temperature increases. Larger sea storms sweep the elevated ocean levels over the land and cause erosion. This leaves residents vulnerable to the sea.

Infrastructure threats will pose an ongoing concern for rural coastal communities, particularly given the high cost of construction in rural Alaska. Alaska is indeed on the front lines of climate change, and it is affecting all of our coastal communities.

There is a need of Federal funds and bipartisan advocates to address climate change due to the Federal trust responsibility that the government has with its indigenous peoples. The funds already made available are just a drop in the bucket compared to the dozens of communities in Alaska that will eventually have to relocate due to climate change.

Thank you very much for providing me this opportunity to testify on the impacts of climate change.

[Speaking native language.]

[The prepared statement of Ms. Jordan follows:]

PREPARED STATEMENT OF JENNINE JORDAN, GOVERNMENT RELATIONS LIAISON, CALISTA CORPORATION

Hello Chairman Gallego, Ranking Member Cook, and distinguished members of the Subcommittee for Indigenous Peoples of the United States. My name is Jennine Jordan. I currently serve as the Government Relations Liaison for Calista Corporation, a regional Alaska Native Corporation. Thank you for inviting me to provide a village perspective in this hearing, and to discuss how climate change has affected Newtok, 1 of the 56 villages within the Calista region. In addition to giving my statement today, I will be submitting additional written testimony for the record.

I am Inupiaq and my family is from the Native Village of Unalakleet, a remote community of about 700 people in the Bering Straits region. I am a shareholder of Unalakleet Native Corporation, my village Corporation, and Bering Straits Native Corporation and CIRI Corporation, my regional Corporations, each of which were created and mandated by Congress through passage of the Alaska Native Claims Settlement Act (ANCSA) in 1971, which settled Alaska Natives aboriginal land claims.

I am here to tell you that climate change is affecting Alaska's rural communities. Erosion is the principal threat to the habitability of many Alaska Native villages (USACE 2006, 2009). The Arctic sea ice extent that protects coastal communities

is melting. As a result, waves and storm surges are accelerating erosion (GAO 2003, 2009). As a result of coastal erosion, my family's village, Unalakleet, is considered one of the vulnerable communities of Alaska. Unalakleet has been adapting to climate change by building seawalls and raising roads. In 2010, the U.S. Army Corps of Engineers spent more than $28 million on infrastructure for Unalakleet, armoring the beach with rocks and a gabion wall. Despite these efforts, my family, my cousins, and the neighbors in my community see the shoreline armoring being chipped away daily. Some folks have moved their homes from town to the hillside, which exemplifies a gradual relocation of Unalakleet to the higher hills in response to climate change.

Throughout the state, local companies and Alaska Native Corporations have pitched in to help communities battling erosion caused by climate change. Calista Corporation through its subsidiary, Brice, has repaired gabion walls and breakwater for decades for villages affected by climate change. We are working currently in St. George and at the Kivalina Airport. We do this because we enjoy working within Alaska to rebuild communities in partnership with the state and Federal Government.

Newtok, a coastal village of 350 people on the Bering Sea, is one of the first communities in Alaska to migrate to a new site 9 miles away, Mertarvik. Newtok is currently threatened by advancing erosion caused by the Ninglick River adjacent to the village. This progressive erosion, plus permafrost degradation and seasonal storm flooding threaten the very existence of Newtok. Years of erosion studies show that Newtok must relocate because there is no permanent and cost-effective alternative for remaining at the current village site. According to U.S. Army Corps of Engineers estimates, it will cost $130 million to move the whole village. Even though Mertarvik and Newtok are only 9 miles apart, relocation costs are high due to the fact that there are no roads connecting the two rural Alaskan communities together.

In 2007, the state of Alaska created the Subcabinet on Climate Change, identifying communities in the most critical need of support. The Subcabinet's Immediate Action Work Group identified: Kivalina, Koyukuk, Newtok, Shaktoolik, Shishmaref, and Unalakleet as "six communities in peril." In addition, the U.S. Government Accountability Office identified 31 Alaska communities that are threatened by climate change. Of those, 4 were considered to be dire: Newtok, Kivalina, Shishmaref and Shaktoolik.

In 2008, I conducted a housing analysis for Newtok while as an intern at the Denali Commission. The housing analysis was a product of the Newtok Planning Group, which was formed in 2006 by representatives from state and Federal agencies and NGOs which agreed to coordinate relocation assistance for Newtok. The Newtok Planning Group has published various studies and plans are underway to move the village. These are generally outlined in the *Strategic Management Plan—Newtok to Mertarvik* (2012) listed on the AK Department of Commerce, Community, and Economic Development's website. More specific plans and much more information on relocating Newtok to Mertarvik is also available there. Numerous Federal and state hearings and reports have also been conducted on the relocation of Newtok. Stanley Tom, the former tribal administrator of the Newtok Traditional Council testified on October 11, 2007 at the Subcommittee on Disaster Recovery, outlining the steps Newtok has taken to move to Mertarvik.

The community members' greatest need is for housing at the relocation site of Mertarvik, Alaska. There is such a critical housing shortage in Newtok today that multiple families are living in a single-family home. The Cold Climate Housing Research Center (CCHRC), a non-profit organization that specializes in building in arctic climates, estimated the community needs a total of 105 houses in Mertarvik—39 more than the 66 houses standing in Newtok today.

This past summer, four Mertarvik homes were constructed by the Association of Village Council Presidents (AVCP), the area's regional housing authority. In summer 2019, 13 more homes are expected to be built in Mertarvik, bringing the total on site to 21. Securing funding for housing is essential to the relocation process because it will expedite the relocation and provide improved quality of life. For example, occupied housing at Mertarvik will allow the community to become eligible for many traditional state and Federal funding programs.

Newtok Village Council and the Lower Kuskokwim School District received $1 million in funding from the Alaska Housing Finance Corporation to advance housing construction in Mertarvik in 2020. The project will construct two state-of-the-art high energy performance duplexes with solar photovoltaic panels. The duplexes will be the first housing constructed specifically to serve professional populations including teachers, village public safety officers, and public health aides in Mertarvik. These grants address the greatest challenge in Newtok's relocation to Mertarvik—

new housing construction. As part of efforts to enable Newtok's relocation to the Mertarvik site, the Denali Commission is providing match funding for the award issued to Newtok Village Council.

Alaska's rural communities lack critical access to clean water for drinking, sanitation, and hygiene. The people of Newtok have been living without water or sewer systems for generations. To address this need, the United Methodist Committee on Relief awarded $943,000 to Newtok to install 21 in-home Portable Alternative Sanitation System (PASS) units in Mertarvik, Newtok's relocation site. PASS units are innovative, low-cost alternatives to piped infrastructure that provide basic sanitation needs including hand washing, clean drinking water, and safe human waste disposal.

CONCLUSION

Alaskan permafrost, land that typically stayed hard and frozen year-round, has been melting partially due to temperature increases across the state. Larger sea storms sweep the elevated ocean levels over the land and cause erosion into the ocean. This leaves residents vulnerable to the sea. Infrastructure threats will pose an ongoing concern for rural coastal communities, particularly given the high costs of construction in rural Alaska. Alaska is on the front lines of climate change and it is affecting all of our coastal communities. There is a need of Federal funds and bipartisan advocates to address climate change due to the Federal trust responsibility that the government has with its indigenous peoples. The funds already made available are just a drop in the bucket compared to the dozens of communities in Alaska that will eventually have to relocate due to climate change.

Thank you very much for providing me this opportunity to testify on the impacts of climate change in rural Alaska.

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The following documents were submitted as supplements to Ms. Jordan's testimony. These documents are part of the hearing record and are being retained in the Committee's official files:

—Newtok to Mertarvik Relocation, Newtok Village Council, December 2017.

Mr. GALLEGO. Thank you, Ms. Jordan.

Now we will have Dr. Buzzard speak.

STATEMENT OF SHIRLEY BUZZARD, PRESIDENT, BUILDING RESILIENT COMMUNITIES FOR CLIMATE EXTREMES (BRACE) INSTITUTE, WASHINGTON, DC

Dr. BUZZARD. I would like to just echo my colleagues, and thank you so much for holding these hearings and calling attention to this really urgent problem.

The impact of climate change is enormous to the health and livelihood of many Native Americans but most urgently, as you can see, for those who are living on low-lying islands and coastal communities.

In May 2016, Congressman Grijalva sponsored a forum on "Confronting a Rising Tide: The Climate Refugee Crisis." Among those invited to speak at that forum were representatives of the Isle de Jean Charles Band of Choctaw, a gentleman from the Arctic Council, and people from the Embassy of the Marshall Islands.

My company, Heartlands International, which is a Native American-owned small business, was honored to host our visitors to Washington and provide them with some food and housing. So, we spent a lot of time with them, and they told us that they desperately need an intermediary organization to help them understand the bureaucracy and the way Washington works.

These are people who live on disappearing islands. They are not equipped to deal with the intricacies of the Federal Government or large donors. Even taking a few days off work—since these are mostly maritime people, just taking a day or two off work was a major hit to their income.

So, they asked if we would form a non-profit organization that would serve as an intermediary between the groups that you have heard about and others to help them leverage funds, do reporting and accountability, and provide technical assistance for areas where they need it.

In response to their request, we created the Institute for Building Resilient Communities for Climate Extremes, or the BRACE Institute, which is a 501(c)(3). Our objective is to provide support and technical services for the relocation of whole communities while keeping their cultural integrity.

Initially, BRACE is partnering with the following communities, which are populations of between 200 and 1,000 people that are going to relocate in the next 3 years: Primarily, we are working with the Choctaw in Isle de Jean Charles. We hope to be working with the Native Alaskan communities and also with the Quinault.

Community relocation is a multi-sectoral problem. All of the communities mentioned have maritime economies, and if they move very far inland, they are going to have to learn new ways of making a living, including fish farming, greenhouse gardening, or other skills. As the educational level of the older members of these communities is marginal, they depend heavily on young people to lead the way.

And the groups we have identified are only the beginning. As you have heard, all of the Alaskan coastal communities are going to have to move soon. Estimates are that there are already about 14 million climate refugees in the world. And these are people who have moved to new cities or countries as individuals or families

because of job loss, famine, and other climate extremes. There is really very limited experience with relocating whole communities.

Responding to this urgent need, BRACE works with partners in the business and labor sectors to provide technical assistance and research. We partner with the Laborers International Union of North America on housing construction, and they also do job-training skills in the construction trades.

We have a partnership with Illinois State University in Normal, Illinois, to provide technical assistance in political, economic, social issues that come up and also in terms of the documentation of what is working and what is not.

BRACE is initially targeting these low-lying islands in the United States, but we are learning from the Marshall Islanders who have moved to Springdale, Arkansas, so we understand some of the health and other issues that climate refugees face. Many of the Pacific Islands will be disappearing before long.

We employ a classic community development approach within each community, which includes highly participatory methodology of helping people make decisions for themselves and building the capacity of communities to make their own decisions. We place emphasis on building leadership skills of young community members and women.

Our multi-disciplinary approach fosters a better understanding of the issues in both the origin and the destination communities, because with community relocation, you need to think not only about where they live now but where they are moving to and what effect that is going to have on the destination communities.

There are dozens of organizations working to mitigate climate change and postpone relocation by building seawalls or houses on stilts. All of these efforts are welcome, but they are short-term and often very costly. BRACE is the only organization that works with communities on total relocation and on the design of new green communities and with the assistance of learning new job skills.

The main issues we are encountering on start up, of course, are funds, not only for BRACE as an institution but to the construction of new communities. As you have heard——

Mr. GALLEGO. Dr. Buzzard, please, can we come to a summary?

Dr. BUZZARD. Yes.

Mr. GALLEGO. Thank you.

Dr. BUZZARD. OK. Anyway, we are grateful to be here and happy to answer your questions.

[The prepared statement of Dr. Buzzard follows:]

PREPARED STATEMENT OF SHIRLEY BUZZARD, PH.D., PRESIDENT OF THE BRACE INSTITUTE, WASHINGTON, DC

Many thanks to the Subcommittee on Indigenous People for calling attention to the effect of climate change on Native Americans. The impact of climate change is enormous to the health and livelihood of many Native Americans but most urgently for those who live on low-lying islands and coastal communities.

In May 2016, Rep. Grijalva sponsored a forum on Confronting the Rising Tide: The Climate Refugee Crisis. Among those invited to speak at that forum were representatives of the Isle de Jean Charles Band of Biloxi-Chitimacha-Choctaw, a representative from the Arctic Council and a representative from the Embassy of the Marshall Islands. My company, Heartlands International, a Native American Owned small business, was pleased to host some of the visitors to Washington, DC for that event. In our discussions during their visit, it became clear that the people

who live on the disappearing islands are unequipped to deal with the Federal bureaucracy and fundraising for their relocation. Taking a few days off from their work to travel to Washington, DC was a huge sacrifice for them and their families. The functioning of the U.S. government and other potential donors is bewildering to them.

They asked Heartlands to form a non-profit with would serve as an intermediary for them in leveraging funds, reporting, and providing technical assistance to them. In response to their request, we created The Institute called The Building Resilient Communities for Climate Extremes (BRACE Institute) a 501(c)(3). Our objective is to provide support and technical services for the relocation of whole communities while keeping their cultural integrity. Initially BRACE is partnering with the following communities. These are all communities of between 200 and 1,000 people that need to completely relocate in the next 3 to 5 years:

- The Isle de Jean Charles Band of Biloxi-Citimacha-Choctaw
- The Alaskan communities of Shishmaref, Kivalina, Newtok and Quinhagak
- The Quinault Indian Nation in Tahdah, Oregon

Community relocation is a multi-sectoral problem. All the communities mentioned have maritime economies and if they move very far inland, they will have to learn new ways of making a living including fish farming, greenhouse gardening and other skills. As the education level of the older members of these communities is marginal, they are depending heavily on young people to lead the way.

This is only the beginning. All coastal Alaskan communities will have to move soon. Estimates are that there are already 14 million climate refugees in the world. These are people who have moved to new cities or countries as individuals or families because of job loss, famine, and other climate extremes. There is limited experience with the relocation of whole communities. Responding to this urgent need, BRACE works with partners in the business and labor sectors for technical assistance and job training. We partner with Illinois State University in Normal (ISU) to provide technical assistance and research. We also work with the Laborer's International Union of North America (LiUNA) on housing construction and jobs skills training. BRACE is a multi-disciplinary and global support center for communities that need to relocate due to climate change

BRACE is initially targeting low-lying islands in the United States. We also are learning from the Marshall Islanders who have moved to Springdale, Alaska as to some of the health and other issues for climate refugees. Many of the Pacific Islands will also disappear before long.

BRACE Institute employs a classic community development approach within each community. This includes a highly participatory methodology of helping people make decisions for themselves and building the capacity of communities to make their own decisions. We place emphasis on building the leadership skills of young community members and women. A multidisciplinary approach fosters a better understanding of the issues in both the origin and destination communities. The complex problem calls for a multifaceted solution. BRACE monitors carefully and documents what works as thousands of communities worldwide will have to relocate in coming years.

There are dozens of organizations working to mitigate climate change and postpone relocation by building sea walls or houses on stilts. All of these efforts are welcome, but they are short-term and often very costly solutions. BRACE is the only organization that works with communities on total relocation and the design of new, green communities and assistance with learning new job skills.

The main issues we are encountering as we start up are, of course, funds for the organization and for the construction of new communities. The construction of totally new communities is very costly so where possible we promote re-location in or near existing communities. Also, BRACE wants to be cautious about raising expectations and assuring that the communities take the lead with BRACE as a supporting partner. Community members know what they need to do and, in many cases, how to do that. The Choctaw and Quinault already have excellent designs for new green communities and have located land they want to purchase. They urgently need a support organization that can provide funding, management skills, and technical assistance on construction, and job training.

We are very grateful to be included in these hearings. I am happy to answer your questions.

Mr. GALLEGO. Thank you, Doctor. Much appreciated.

Next is Mr. Verlon Jose from the Tohono O'odham Nation.

STATEMENT OF VERLON JOSE, VICE CHAIRMAN, TOHONO O'ODHAM NATION, SELLS, ARIZONA

Mr. JOSE. [Speaking native language.] Good day to you, everyone. Good afternoon, Chairman Gallego, Ranking Member Cook, and distinguished members of the Subcommittee.

My name is Verlon Jose, and I am the Vice Chairman of the Tohono O'odham Nation, a federally recognized tribe with more than 34,000 members. The Tohono O'odham Reservation consists of more than 2.8 million acres in southern Arizona, one of the largest Indian reservations in the United States, and shares a 62-mile border with Mexico.

Since time immemorial, we have learned to live in the desert and have adapted to high summer heat and scarce water. But as climate change has begun to disrupt our traditional and modern ways of living, we have had to figure out ways to cope with these changes.

The Nation has 41 monitoring stations on the reservation to measure precipitation and temperature. The Nation also took the proactive step of developing a climate change adaptation plan which examines the impacts of climate change on the Nation and its members and potential solutions.

We appreciate the Subcommittee providing this opportunity to address climate change, which is a significant issue for the Nation as well as other Native people.

As a result of climate change, it is getting hotter and hotter, and there is more drought across the Nation's lands than we have experienced in the past. Arizona is currently in a 20-year drought. The average annual temperature is increasing, as shown in the 2018 Fourth National Climate Assessment and monitoring done by the Nation.

The heat and the drought reduce forage for our livestock, food for wildlife, and the recharge of our groundwater aquifers. As a result of the dry soils, higher surface temperatures, and less vegetation, there is an increased threat of wildfires. And the wildfires are larger and start earlier in the season.

The heat, drought, and fires put people, animals, and food sources at risk, impose greater costs on the Nation to ensure the well-being and safety of our people.

The day-to-day impacts on our members' ability to gather and use traditional foods is staggering. Although we have not yet experienced the complete loss of traditional foods, the availability of these foods has been drastically impacted by the significant change in the average temperature that alters the seasonal life cycle of traditional plants. Our members go out to gather traditional foods and find that many are blooming out of season or not blooming at all as a result of climate change.

As rising heat and drought continues, the Nation will likely face increased challenges with respect to our ability to store food for our members. Currently, the Nation stores food to distribute to members in need. However, we do not have enough cooling capacity to store perishable foods, and we have only two food distribution trucks to cover 2.8 million acres.

In addition to high heat and drought, the Nation also is experiencing much more extreme weather than ever before, such as intense rain, severe thunderstorms, microbursts, and strong winds. Fifteen of our communities have been impacted by 50-year floods. There are four communities within the Nation where flooding is most severe. The Nation is very concerned that if we were to see a 100-year flood event, these communities would be completely devastated.

We are experiencing more changes in the rain, and, while the annual average precipitation is less, there are shorter, more intense rain events throughout the year. For example, last fall, Hurricane Rosa dumped an incredible amount of rain on the reservation in a very short time. Residents of three villages had to move to avoid the extreme flooding. One village got 8 inches of rain in 6 hours, and a nearby dam almost overflowed.

Following that intense flooding of our reservation last year, in November 2018, President Trump issued a disaster declaration for the Nation to assist with recovery efforts. We received FEMA funds to assist with the repair of roads and bridges and for hazard mitigation measures to prevent further risk of life and property from flooding.

The Nation's climate adaptation plan includes the following core strategies: use traditional building knowledge and practices to make homes cooler; open available community buildings as cooling centers during heat emergencies; plan for flood mitigation; hire additional wildland firefighters; ensure groundwater is treated for more households; and educate community members about climate change.

The Nation will continue to take corrective steps to invest in climate change response, but the costs of addressing climate change are significant. Increased funding for Federal programs and grants focused on climate change is needed. Increased FEMA funding for flood mitigation and firefighter support is a must.

The Nation and other tribal communities cannot fight climate change impacts alone. Congress must live up to its trust obligations to help provide us with the resources to ensure that we can protect our members, our lands, and our natural resources.

The Nation sincerely appreciates the Subcommittee's interest in this critically important issue and the opportunity to share our concerns about the impacts climate change has had and will continue to have on the Tohono O'odham Nation.

Climate change threatens to drastically and negatively impact the O'odham way of life. We are working to save it. We ask Congress to work together with tribal nations to address climate change impacts to communities throughout Indian Country.

Thank you for this opportunity to testify. I welcome any questions you may have.

And, last, I think if we address $30 billion to climate change, we might make a difference.

Thank you.

[The prepared statement of Mr. Jose follows:]

PREPARED STATEMENT OF THE HONORABLE VERLON JOSE, VICE-CHAIRMAN, THE TOHONO O'ODHAM NATION OF ARIZONA

INTRODUCTION & BACKGROUND

Good afternoon, Chairman Gallego, Ranking Member Cook, and distinguished Members of the Subcommittee. My name is Verlon Jose and I am the Vice-Chairman of the Tohono O'odham Nation, a federally recognized tribe with more than 34,000 members. The Tohono O'odham Reservation consists of more than 2.8 million acres in southern Arizona (one of the largest Indian reservations in the United States), and shares a 62-mile border with Mexico.

Since the beginning of O'odham history, we have learned to live in the desert, and have adapted to high summer heat and scarce water. But as climate change has begun to disrupt both our traditional and modern ways of living, we have had to figure out ways to cope with these changes. The Nation has 41 monitoring stations on the reservation to measure precipitation and temperature. The Nation also took the proactive step of developing a Climate Change Adaptation Plan, which examines the impacts of climate change on the Nation and its members, and potential short- and long-term solutions.

My testimony will summarize a number of those impacts and some potential solutions. We appreciate the Subcommittee providing this opportunity to address climate change, which is a significant issue for the Nation, as well as other Native people.

I. HEAT AND DROUGHT

As a result of climate change, it is getting hotter, and there is more drought across the Nation's lands than we have experienced in the past. Arizona is currently in a 20-year drought, and drought conditions persist across the Southwest. Climate change has resulted in increased average annual temperatures on the Nation's reservation, as reported in the congressionally-mandated Fourth National Climate Assessment completed in November 2018, and confirmed by monitoring done by the Nation. The increased temperatures and drought reduce the forage available for livestock and the sources of food for wildlife. The heat and drought reduce the recharge of our groundwater aquifers, and there is less surface water available for livestock and wildlife. Additionally, climate change affects the availability of traditional foods that our members rely upon.

As a result of the dry soils, higher surface temperatures, and less vegetation, there also is an increased threat of wildfires—and the wildfires are larger and start earlier in the season. The heat, drought and fires put people, animals and food sources at risk—and impose greater costs on the Nation to ensure the well-being and safety of our people. For example, many of the Nation's members used to open the windows at night to keep their homes cool. But with the hot temperatures extending long into the night our members now need to keep air conditioning units on throughout the day and night in order to keep the temperature in their homes at safe levels. This results in increased electricity costs for individual members. The Nation also incurs additional costs as we work to ensure the safety of our members who may not be able to afford air conditioning units. Traditionally, to cope with intense daytime heat the O'odham people constructed wattos—open-air shade structures with dirt floors, which we would wet throughout the day. As part of our Climate Change Adaptation Plan, the Nation is currently exploring a return to some of our traditional building practices in order to reduce the cost of air conditioning during the hottest months.

In addition, the day-to-day impacts of increased heat and drought on our members' ability to gather and use traditional foods is staggering. The Nation has been increasingly creating and implementing programs to encourage O'odham people to return to a traditional diet in order to improve health. However, returning to a completely traditional diet is next to impossible because of the damage done to our traditional food sources as a result of climate change. Although we have not yet experienced the complete loss of traditional foods, the availability of these foods has been drastically impacted by significant changes in the average temperature that alters the phenology, or the seasonal life cycle, of traditional plants. Our members go out to gather traditional foods and find that many are blooming out of season or not blooming at all as a result of climate change.

Additionally, as rising heat and drought continue, the Nation will likely face increased challenges with respect to our ability to store food for members needing food assistance. Currently the Nation stores food to distribute to members in need. However, we do not have enough cooling capacity to store perishable foods and we have only two food distribution trucks to cover all 2.8 million acres. Rising heat and

drought will only compound the challenges that we face in storing adequate food for distribution to our members.

II. EXTREME WEATHER AND FLOODING

In addition to higher heat and drought, the Nation also is experiencing much more extreme weather than ever before, such as intense rain and severe thunderstorms, microbursts and strong winds (called jecos). Fifteen of our communities have been impacted by 50-year floods. In many cases, when these areas flood throughout the year, the flood waters come straight up to the doorways of our members' homes. There are four communities within the Nation where flooding is most severe, including Santa Rosa Valley, Menager's Dam, Chui Chu Village, and Vamori Village. The Nation remains very concerned that if we were to see a 100-year flood event these communities would be completely devastated.

We are currently experiencing much more variability in rain, and while the annual average precipitation is lower and the rainstorms are fewer, there are shorter, more intense rain events throughout the year. For example, last year Hurricane Rosa dumped an incredible amount of rain on the reservation in a very short time. Residents of three villages had to move to avoid the extreme flooding. In one location a berm broke as a result all of the rain, and about 3 feet of water swept through the village. Another community got 8 inches of rain in 6 hours. That community is located near a dam, which came very close to overflowing—luckily it did not, but if it had it would have destroyed the village.

The intense rain events and increased flooding also wash out roads and strand communities: residents, school buses, and emergency vehicles are cut off from the homes by the flood waters. These extreme weather events put people, homes and other infrastructure at risk. Following the intense flooding of our reservation last year, in November 2018 President Trump issued a disaster declaration for the Nation to assist the Nation with recovery efforts. Funds from the Federal Emergency Management Agency (FEMA) were transferred to the Nation to assist with the repair of public facilities such as roads and bridges as well as hazard mitigation measures to prevent long-term risk to life and property due to the flooding.

III. POTENTIAL SOLUTIONS

As I noted in my opening remarks, the Nation has created a Climate Change Adaptation Plan to begin to focus on how we can mitigate the impacts of climate change. The plan includes the following core adaptation strategies: (1) use traditional building knowledge and practices to make homes cooler; (2) open available community buildings as cooling centers during heat emergencies; (3) plan for flood mitigation; (4) hire additional wildland firefighters; (5) ensure groundwater is treated for more households; and (6) educate community members about climate change.

To respond to extreme storms and flooding, we need to continue to do floodplain mapping and create inundation maps for all dams and levees. The U.S. Army Corp of Engineers has analyzed several areas prone to flooding on the Nation and has offered potential solutions, including a reconnaissance report to reduce flooding in the Santa Rosa Valley and a feasibility study for potential flooding in and around Chui Chu village. The Nation is working on implementing these steps. The Nation is also identifying areas for drilling and aquifer testing to accurately quantify groundwater resources on our reservation. Additionally, the Nation is facilitating the development of an environmental trust fund to assist with covering the costs of mitigating climate change impacts.

With respect to addressing impacts from heat and drought, we have created a Nation-wide agricultural plan to attempt to ensure the survival of traditional foods and provide these foods to our members. Measures include seed-banking of traditional plants, expanding food-crop acreage, finding better ways to get water to crops, and enhancing the Nation's food-distribution infrastructure. The Nation has undertaken the long-term inventory and monitoring of wild food plants. We also have implemented a Nation-wide program to check on elderly and ill members of our communities during the increasing number of extreme heat events. Additionally, the Nation is developing a volunteer firefighter program to increase the number of firefighters available to fight fires caused by extreme drought and heat.

Although the Nation will continue to take proactive steps to invest in climate change response, the costs of addressing climate change are significant. Increased funding for Federal programs and grants focused on climate change solutions and response is needed, including, for example, increasing FEMA grant funding for flood mitigation, hazard mitigation, mitigation planning, fire prevention and firefighter staffing, support and training, and providing funding for BIA climate resilience programs to support tribal adaption planning and training. The Nation and other tribal

communities cannot fight climate change impacts alone. Congress must live up to its trust obligations to assist in providing tribal governments with the resources to ensure that we can protect our members, our lands, our natural resources and our tribal economies from the impacts of climate change.

CONCLUSION

The Nation sincerely appreciates the Subcommittee's interest in this critically important issue, and the opportunity to share our concerns about the impacts climate change has had and will continue to have on the Tohono O'odham Nation. Climate change threatens to drastically and negatively impact the O'odham way of life and we are working to save it. We ask that Congress work together with tribal nations to address climate change impacts to communities throughout Indian Country. Thank you for this opportunity to testify, and I welcome any questions you may have.

Mr. GALLEGO. Thank you, Mr. Vice Chairman.

The Chair will now recognize Members for questions. Under Committee Rule 3(d), each Member will be recognized for 5 minutes.

I will start by recognizing our overall Committee Chair, Chairman Raúl Grijalva, for the first questions.

Mr. GRIJALVA. Thank you very much to all the witnesses.

And, indeed, Mr. Chairman, thank you for the hearing, and the members of this Subcommittee. It is historic, having a discussion about something that is with us already in many parts of Indian Country and certainly looming as an issue that has to be dealt with. So, I want to thank you, Mr. Chairman and the Members, for having this hearing, and the Ranking Member.

Let me ask Vice President Johnston and Vice Chairman Jose a question that was alluded to in both your comments. The trust responsibility, the consultation, the responsibilities that the Federal Government has to tribes—and this is for both of you—how is that relationship with respect to this particular issue working? Or what does it need to work better?

If you don't mind, we will start with you, Mr. Vice President.

Mr. JOHNSTON. Thank you for that question.

When my ancestors signed the Quinault River Treaty of 1855 and later the Treaty of Olympia of 1856, they did that with the thought that our resources and our access to them would be in perpetuity forever to take care of their families, the coming generations. That was their wisdom when they sat in those councils to create those terms.

And now, because of the issues that we face because of climate change and the crisis that our communities are suffering, a lot of those treaty rights are at risk.

I think with a lot of Federal agencies that we work with there is inconsistency about that trust relationship. Some of them, I think, work or are touched by that issue more often. Working with the Bureau or even working with organizations such as NOAA, they are educated, to a degree, on what the trust relationship looks like.

I think what would help improve that is if there was consistency across the board, if all of the agencies somehow had that mandated as something that legally they need to understand what that relationship should comprise.

I think that the trust relationship could always be better. You know, it is a two-way street. It is something that is living and is forming even today in the discussions that we are having in this room.

But I think from where I am sitting, from the emergency perspective, dealing with this issue, it is the consistency and the lack of understanding one agency has over the other.

Mr. GRIJALVA. Thank you very much.

Mr. Jose?

Mr. JOSE. Thank you for the question.

Trust responsibility. I have been looking for that definition for a long time. I think it is a matter of interpretation, as the Tohono O'odham Nation and, I believe, many other nations—we are not looking for handouts, we are looking about positive collaboration and working together.

As indicated in my testimony, we have taken some proactive measures to address climate change. What tribal nations need when it comes to trust responsibility is a true seat at the table. I have often asked that question when measures are taken here in Congress: Who have you consulted? And the response is usually, "Oh, we have our experts who have studied this and so forth."

One of the things that I always say is that, well, your experts have never consulted with our experts. Those are the ones that are living there that face these issues.

This is man-made, this is caused climate change. We really need to take a proactive measure at that and assist, as I indicated in my testimony, about addressing the issues, even to include wildland fires. We are more reactive than proactive.

So, trust responsibility needs to be improved, have the Nation have a seat at the table, have the boots on the ground, consult with the people in the area that is affected or of concern.

Thank you for the question.

Mr. GRIJALVA. Thank you.

Ms. Jordan, the cultural impacts of climate change on Alaska Native communities, part of the question.

The second part is, is climate change in Alaska a myth or is it part of reality there?

So, both those questions, if you don't mind.

Ms. JORDAN. Thank you, Congressman Grijalva.

Traditionally, Alaska Native people were nomadic. We were nomadic tribal people. And due to government policies with boarding schools in particular in Alaska, we had to make our communities permanent so that we could send our children to school. Now we cannot just get up and move like we did in the past when we were nomadic.

Climate change is affecting our subsistence hunts. Many Alaska Natives rely on subsistence foods instead of processed foods, such as seal, fish, whales, et cetera. When the ice is melting, we see that there is a decline in some of these populations, which affects what we eat.

With respect to your second question, yes, we are definitely seeing climate change in Alaska. It does exist. We see it every day in our coastal communities.

My aunt's house in Unalakleet was flooded just a couple years ago because the sea level is rising. It is flooding houses and destroying houses. And my aunt's house isn't even on the shore of Unalakleet.

So, it is changes in the sea. We absolutely see it.

Mr. GRIJALVA. Thank you. And thank you for your indulgence, Mr. Chairman. I appreciate it and yield back.

Mr. GALLEGO. Thank you, Chairman.

I would like now to yield to Member Don Young of Alaska for questions.

Mr. YOUNG. Thank you, Mr. Chairman. I only have two questions.

Jennine, what is the responsibility—and I think it was alluded to, the trust relief—but what is the responsibility of the Federal Government in helping the communities in Alaska, I think there are six now, that have to be relocated? What will be our responsibility?

Ms. JORDAN. Well, we would say that it is a Federal trust responsibility with our Alaska Native communities.

These six communities that are considered dire are going to need funding. And, as Mr. Johnston mentioned, there is a lack of coordination between Federal agencies on funding and who is going to spearhead funding initiatives.

Housing is an issue in Alaska, to move our communities. And Alaska Native communities can't receive Federal funding with respect to the Stafford Act. It is based on singular events like earthquakes and hurricanes, not slow-moving disasters caused by climate change. This does not fit into the Stafford Act. Therefore, Alaska Native communities don't qualify for Federal disaster funds.

So, I would recommend a Federal agency right now that can address climate change refugees in Alaska. Mertarvik does not qualify for many state and Federal agency funds because of housing. And entities that provide housing grants and energy initiatives won't provide those until sanitation facilities are built. So, having a coordinated effort so that there is not the chicken before the egg.

We have the Denali Commission, which helped substantially in the past with infrastructure in Alaska. And that, unfortunately, has not been funded, although it did get funded, I believe, $15 million a few years ago, which was used for Newtok. But the Denali Commission really did spearhead the effort to put infrastructure and help our rural communities, and, unfortunately, there is no funding for it right now.

Mr. GRIJALVA. Good point.

Mr. YOUNG. Thank you, Jennine. Mr. Chairman, I would say one thing. We ought to, if anything we do, consider a funding program to make sure that we do address this issue, because, very frankly, it is not the Alaska Natives' responsibility or their blame.

And I don't know how many have been up there. The erosion is bad. And we might do a little better if we took a lot of this money that we have for meetings and discussions and everything else and put it into really solving the problem and adapting to it. I mean, we might want to think about that too.

With that, I yield back to the gentleman. Thank you.

Mr. GALLEGO. Thank you, Representative Young. Duly noted.

Now I would like to recognize Congresswoman Deb Haaland from the great state of New Mexico.

Ms. HAALAND. Thank you, Chairman, for yielding and for convening this important hearing.

Thank you, Vice Chairman Jose, Vice President Johnston, Ms. Jordan, Dr. Buzzard, for taking the time to be here today to help Congress understand how climate change is affecting tribal communities.

As I said yesterday in my response to the State of Indian Nations address, I am committed to protecting our sacred lands, addressing climate change, and moving renewable energy forward so we can pass our natural treasures down to our children.

I believe it is essential that we focus on environmental justice as we make this transition to reduce our carbon footprint, because all too often, the communities that are most impacted by our changing climate are the communities that are least responsible for causing the problem and the least well-equipped to adapt to the changes.

I have a question for you, Vice Chairman Jose. The Tohono O'odham Nation is having an especially difficult time securing the Federal funding it needs to respond to the devastation of Hurricane Rosa. This systematic breakdown follows a pattern set by Hurricanes Katrina, Maria, and so many others in which under-represented groups bear the brunt of natural disasters.

Can you speak to the financial burden climate change has put on your community or tribal communities in general?

Mr. JOSE. Thank you, Congresswoman Haaland.

I am not sure if we can actually put a financial amount on the burden that it has on our people when it comes to climate change. It is changing a way of life. It is changing our traditional practices. Our traditional foods are off course, and causes a lot of challenges to us due to our health, due to our medicinal purpose and so forth.

With Tropical Storm Rosa, the Nation spent over $4 million just addressing that. And even though there was a Presidential Declaration, we all know that that doesn't cover the entire amount that we spent that we could have used for health, education, housing, infrastructure, and so forth.

So, when it comes to funding, I can't even begin to put an amount. And how do you put a price on changing someone's way of life? It is an enormous cost and burden to not only the Tohono O'odham Nation but tribal communities and the country in general, the world in general.

So, I think we really need to be proactive and address those things proactively rather than reactively. And, as I said, if there is an intent to spent $30 billion on something, why don't we put it to something that is proactive in addressing the challenges of climate change?

Thank you.

Ms. HAALAND. Thank you very much, Vice Chairman.

I yield back my time, Mr. Chairman.

Mr. GALLEGO. Thank you.

I now recognize Ranking Member Cook.

Mr. COOK. Thank you very much, Mr. Chairman.

I am sorry Congressman Young had to leave, because he has a lot of experience, obviously, with the tribes and the weather and

everything else. He told me one time that he only will shave when it rains for 3 days in a row. Whether that is climate change or not, I don't know.

But I am concerned about this partly because I have a number of tribes in my area, in Southern California. And, of course, our big disasters that we are worried about are fires. You have heard the news. And everybody has problems—we don't have a flooding problem, because I am out in the desert, but flooding from the oceans, we do have flooding. Right now, we have had a lot of rain, this and that.

I am unlike, perhaps, some of my colleagues. I don't understand the whole thing. I am always looking for data on how it applies.

But I have to be honest with you. As a former mayor, I am going to be—I have a deficiency in my community that perhaps puts some of my citizens or tribal members in danger or affects their economy. I am going to be trying to get money or funds for that. That is the only way we are going to solve that problem.

And, of course, this is where you have flood-control projects. This is where you have the thinning of perhaps some of the forests so we don't have the fuel.

Part of the reason my statement had that thing in there, I am always going to go back. I am committed to changing what has happened in the past. The tribes have so much poverty and everything else, and now they are being hurt even more.

So, that being used as an incentive—I will call on, I don't know, any of you. But I will ask Ms. Jordan whether, if we created certain funds for whether it is called climate control or what have you, but certain economic factors where we could have a superfund, where we could at least—we know that a dam has to—or that is a bad word, but some kind of thing where you control certain rivers that don't wipe out settlements or villages or anything else. And I always was looking for a certain fund, because I hate to use the term a "rainy-day scenario," but I think even more so than other peoples, because of past history, something like that that could be used for these emergencies, however they are caused.

Can you comment on such a radical solution, perhaps, Ms. Jordan?

Ms. JORDAN. Thank you, Ranking Member. I appreciate the question. And I absolutely think that there should be a fund or an agency that can address and take on climate change directly.

Unfortunately, with the example of Newtok moving to Mertarvik, many of the funds—the estimates were $130 million with the Army Corps of Engineers. And I have done some math, and about $46 million has been spent just to start the project of moving over to Mertarvik. But that is just a drop in the bucket.

They try to get funds from the Denali Commission. You heard in my testimony that they were trying to get funds from a church for sanitation purposes. They tried to apply for funds through the Stafford Act. They were actually denied FEMA funds.

So, I absolutely agree.

Mr. COOK. And do you think the Federal Government has been slow in declaring this a national emergency or crosses that threshold so we could get money for these projects?

In other words, if I am hearing this right, you want to see if this Committee can use its power to expedite some of these occurrences, to get the money and funds, because somebody referred to the red tape and the bureaucracy. I am not trying to put words in your mouth, but I am just trying to gauge——

Ms. JORDAN. Absolutely. Correct. Yes.

Mr. COOK. OK.

I see the gentleman wants to answer, so if the Chair will——

Mr. GALLEGO. I yield more time, 2 more minutes.

Mr. JOHNSTON. Thank you for the opportunity to respond.

Thank you for the question, Mr. Cook.

Earlier, when you gave your opening statement, I believe you said one-size-doesn't-fit-all. And I think when you think of our tribes in the United States that have a special relationship with the United States, one-size-doesn't-fit-all. And if we had an opportunity to access a program like you mentioned that promotes self-determination and self-governance, that allows us to really design what that would look like in our community, that would be most helpful, because we know our communities best.

Mr. COOK. Thank you.

And I just want to comment, I am on your side on this. God, I hope I am not on TV, but I kind of hate the Federal Government, OK? And I worked for it for 26 years. I guess I am working for it again.

But I think everybody on the panel just wants to cut through the red tape when we have something like—and I am looking for solutions, funds, or what have you. Because I look at that poverty line, which has been contributed to—well, because of past history, and I want to correct it.

I know we are asking you questions, but you people are a lot smarter than I am. And anytime you have a solution on this—I mean, it is going to be huge. But if we can cut through that crap that is, "Well, you have to submit this document and 5,000 pages of this before we correct this, this, and this"—and I think a lot of us here, even though we are different parties, we are looking at ways to help the people that we represent. And I will be honest with you, you are the experts.

I yield back because I am out of time.

Mr. GALLEGO. Thank you, Mr. Cook.

I now recognize Mr. Case from Hawaii.

Mr. CASE. Thank you, Chair and witnesses.

As this is the first meeting of this Committee, my Subcommittee members, I bid you "aloha" from the Native Hawaiians, the indigenous peoples of Hawaii, the indigenous peoples just as are you and as are the Native Americans and the Alaska Natives and the residents and indigenous peoples of my colleague to my right.

The Native Hawaiians, as with all indigenous peoples, were highly sensitive to the changes in our environment, in our weather, to the seasons. They could detect short-term, long-term changes and make adjustments. The Native Hawaiians in Hawaii had a highly sustainable culture of hundreds of thousands without any imports from the outside world, since they knew nothing of the outside world, other than for the ancestral lands to the south. And they

survived and prospered for generations and generations by careful land and resource management.

They had a system of land management in which the land divisions stretched from the top of the mountains out into the fisheries in kind of pie-shaped structures all the way around the islands. And, in that way, each of those divisions was able to manage, from the uplands through the harvest lands and out into the ocean.

And I can tell you in no uncertain terms—and you know this for yourselves—that, had we been back in the situation of climate change 300 years ago, with the kind of rapid change in our climate and with our atmospheric changes and with the ocean changes, the Native Hawaiians would have detected changes in the ocean temperature, they would have detected changes in the fisheries, in the corals, they would have detected a different growing season, they would have detected changes in the upland forests and the birds, and a sustainable take from all of that. They knew these things, as you did, and they would have—although maybe they wouldn't have understood the science as we understand it—they would have made adjustments.

And I ask you this question in that spirit. And I am going to just focus with you, Vice President Johnston, because you are talking about the ocean resources. In Hawaii, we particularly worry about—we have changes in our ocean temperature; we have changes in our coastlines; we have erosion on our coastlines; we have changes in our forests, causing our native birds to adjust their habitat, adjust their habits; and we definitely have changes in our fisheries. And we are trying to find the ways to manage our fisheries, not only through over-exploitation but through the impacts of climate change on temperature, on the feeding relationships from predators on down.

So, I ask you this, Mr. Johnston. You spoke a little bit about this, but in the management of your ocean resources, what, if anything, have you noticed in the last decades that you now may attribute to climate change in terms of the changes in your fisheries? Do you have control over your fisheries? And what are you doing about it from a management perspective?

Mr. JOHNSTON. Thank you so much for that wonderful question.

The Quinault Indian Nation has adjudicated treaty rights 30 miles out on the west side of the border into the ocean. And we have noticed, even in this last decade, just a high increase of temperature.

And this increase of temperature has allowed an influx of different things that we have been seeing—invasive species, deepwater fish being in our area that we haven't seen before. We have seen domoic acids rise in our shell beds for our clams, for our different shellfish that we access.

We have seen these changes happen at that macro level. And even working with our partner agencies and the Federal Government, we have been able to see conditions that are just not conducive to our fish going out into the ocean and coming back and spawning. It has been some of the worst ocean conditions that we have ever witnessed.

We have had to declare two fisheries disasters within the last two decades. One was more recent, in 2015. We actually just are

mulling over the thought of calling in for another fisheries disaster for our prized blueback salmon that go into our Quinault River, a subspecies of sockeye.

Mr. CASE. Under your treaty rights, do you have the power to manage your fisheries in that way? Do you have full discretion over how you manage?

Mr. JOHNSTON. We have full discretion in a co-management relationship with the state of Washington. And that is something that we perfected since the *U.S. v. Washington Boldt* decision.

But this has just become a new way of living, with these new conditions. We are looking out for the best science but also calling on our partners that work with us at the state and Federal level to honor the indigenous history, knowledge, and science that we possess in parity with theirs.

Mr. CASE. Thank you very much.

Mr. GALLEGO. Since we have nothing coming from my right-hand side, we will move to Representative Soto for his questioning.

Mr. SOTO. Thank you, Mr. Chairman.

And thank you all for coming today.

One of the primary functions of this Committee is, I have always believed, to make sure to provide justice for so many indigenous peoples throughout the United States and really to right the wrongs as best we can that have happened throughout American history.

And when it comes to climate change, one of my biggest concerns relates to our history, that so much of the fertile land was stolen over the course of centuries. And many of our Native American tribes are on lands in areas that are more vulnerable to climate change as a result of that tragic and unfortunate history that we have to come to grips with today, and not just today but in the past and now in the future. Whether it is desert or tundra or islands or mountainous regions or low-lying regions, so much of the areas that we are talking about are more affected, more vulnerable to climate change than other lands throughout the United States.

I do have some hope in the fact that we will have a trillion-dollar infrastructure package that hopefully we will pass out of this Congress with bipartisan support.

I guess my biggest question to each of you would be: If we were to include one specific project, major project, in this package to help you all combat climate change for your community, what would that project be?

And we will start from left to right, starting first with Vice President Johnston.

Mr. JOHNSTON. I think the one thing we would ask for is the continued support in funding of our relocation efforts. We have put thousands of man-hours, dollars, Federal grants, to develop what a master plan would look like to revision our communities, so the ability to implement that effectively, on the ground, driven by our community and our Nation's need, would be the ask that I would make.

Mr. SOTO. Thank you.

Ms. Jordan?

Ms. JORDAN. Thank you.

I would echo that funding is absolutely something that we need for our communities.

As I mentioned in my testimony, there are many Alaska Native villages that are seeing the real effects of climate change right now. It is just right out their door, literally, the ocean.

So, having a coordinated funding approach with a process in place that acknowledges that there are so many communities in need would be what I would ask for.

Mr. SOTO. And then, Dr. Buzzard, overall, what would you recommend——

Dr. BUZZARD. I strongly support what the previous speakers have said.

I think the challenge is making access to those funds easy. Because, as I said before, many of the tribal communities don't know how to access Federal funds or don't really want to get into the whole proposal-writing business. So, I think having an intermediary organization that can parcel out those funds, be sure that they are used correctly, and provide assistance where they need it, I think that is a fabulous idea.

Mr. SOTO. And the current departments in place to do that aren't able to accomplish that function?

Dr. BUZZARD. I think we have already heard there is so much overlap and contradiction in Federal agency rules and regulations. All of that needs to be simplified and made much more accessible to small communities.

Mr. SOTO. Thank you.

And Vice Chairman Jose?

Mr. JOSE. Congressman, thank you for the question.

I believe and echo the sentiments of the other witnesses here, and also echo and thank Ranking Member Cook about developing a superfund of some sort to cut the red tape out, as was stated earlier. I believe not only tribal communities, but communities and cities across America, want to address this. But the lack of resources, the lack of funding to do some of these things is a two-way street. It is not for the government to solve all—but it is for the people to step up and address that, but there needs to be a better system to do it.

There needs to be a better system so the individuals, the communities can address those funds and use them. Because, too often, people put resources available, but they don't know how to fix the problem because they are not actually there. And that is why I mentioned a seat at the table, to really have true consultation on how to address those things. Funding needs to be available to take proactive measures to address climate change.

Thank you for the question.

Mr. SOTO. Thank you all for your input.

Mr. GALLEGO. Thanks to all the witnesses.

And, Dr. Buzzard, I have a question. You stated in your testimony that community relocation is a multi-sectoral problem. Please expand on that and what it means to relocated communities.

Dr. BUZZARD. Yes, relocation is a multi-sectoral thing.

You have the economic issues of new jobs or retraining for jobs. You have political issues of sovereignty. If you are moving into an existing city, are you going to be a little reservation or what? Or,

of course, when you get into things like the Pacific Islanders that are trying to buy land in Australia, what kind of sovereignty are they going to have? Are they going to be reservations? There are a lot of issues about sovereignty and political issues as these relocate.

There are psychological problems, because relocation is hardest particularly for the older people who are used to traditions and customs, and all of a sudden they aren't able to do those. And they are exposed to a lot of cultural change, shock.

There are health issues. The people who are most affected by relocation are usually the women, disabled people, and elderly.

So, one of the reasons we partner with the university is that we can get technical assistance or we can get research to bring to bear on how to minimize these things from all directions.

But it is not just a simple thing of packing up and moving. There are a lot of other external issues.

Not to mention the relationships with the destination community. Because if you start bringing in people, foreigners, and plunking them down in an existing town, you can create all kinds of problems. We have been doing some research with the Marshall Islanders in Springdale and trying to look at how that has affected the situation in Springdale.

But, yes, it is complicated, and it is not a simple thing.

Mr. GALLEGO. Thank you, Doctor.

A question for Vice Chairman Jose.

After the most recent flooding on the Reservation, a disaster declaration was issued by the Administration and FEMA funds were made available to the Nation. And I think you kind of hit on this before.

Were these a sufficient amount of funds in terms of being able to rebuild the roads and land previous to the state before the flooding? Were there enough funds actually to take care of the problems, essentially?

Mr. JOSE. Chairman Gallego, Ranking Member Cook, distinguished members of the Committee, there are never enough funds.

There was never enough funds in the beginning. And that is why some of these disasters are very severe, because of lack of maintenance on waterways and roads that were already in deplorable conditions. And when you have the amount of water and rain that hit the Tohono O'odham Nation in such a short time, the roads were easily destroyed.

The berms, the levees that were there to divert water were totally destroyed because of lack of maintenance. And with 2.8 million acres of land, it was challenging for us to address those things because of lack of resources, equipment, manpower, and so forth.

So, to answer your question, we didn't get—and you know that in any declaration, you don't get 100 percent of what you spend there. So, no, there wasn't enough.

And I think that, in order to address that again proactively—had we been addressing it all along, I think we could have mitigated some of the devastation that happened when you have 3, 4 feet of water and mud coming into your homes.

Mr. GALLEGO. Excellent.

Do we have any other questions for our panel?

Mr. Case, sure.

Mr. CASE. Thank you.

Let me ask a question that is going through my mind that may well be a difficult question.

We are talking here about climate change, which is an international issue. It really calls for international action, national action, local action, action right across the board. It is impacting everybody.

And we had testimony in another subcommittee of this Committee this morning from the Appalachian coal community. And the question in that testimony was how do we best transition in a situation where we have to move from fossil fuel use over to renewable energy, and there are going to be dislocated communities along the way.

And it was a very good discussion, but the relationship between the Federal Government and the communities of Appalachia is different from the relationship between the Federal Government and the Native Americans and Alaska Natives.

And the Ranking Member, in his testimony, made the comment that—I think it was somewhere along the lines of—we should not require tribes who are undertaking certain practices, for example, oil and gas and coal extraction—I think those were what he cited—just to solve this problem. I know that is not exactly the way he put it, but that was the gist of it to me.

And the question I have, really, is: If we have to move together to actually move away from fossil fuel extraction, how do we do that with the indigenous peoples and the relationship that we have when we all have to move at the same time?

For example, what if we tell Appalachia, "Sorry, we can't do coal anymore"? How do we then say to the tribe that is doing extraction of fossil fuels, "You have to join the party"? I mean, how do we have that discussion in the different relationship the Federal Government has with you?

Maybe Vice Chair Jose can take a crack at that. I don't know if I got the question right. But how do we all get on the same wagon here?

Mr. JOSE. Thank you for the question, Congressman.

I believe in order to get on the wagon all together, it is about proactive measures in educating.

When we talk about fossil fuels, we need to think about transportation systems that can work. When we have 2.8 million acres of land—well, back in the day, we used to ride horses, we used to run from place to place. And, right now, look at the amount of cars that are out here, just here in the area. Maybe we need to develop systems that will allow us to move without using fossil fuels. We need to look at solar, using solar and providing funding for some of those things.

It is all about education and proactive measures. Because climate change doesn't discriminate. It is going to affect all of us, and maybe the impoverished people more than anyone because of lack of resources. So, it is really about education.

I believe that American cities and towns and Native communities are ready to do that, but the challenges are the resources. I believe

we can get all on the same page, all on the same bandwagon if we educate and provide resources to do so.

Mr. CASE. Thank you.

Anybody else have a reaction to my question?

It really has more to do with the jurisdictional question. It has to do with the Federal Government's power and how the power is exercised in this particular case, where you are trying to get uniformity across the country in terms of a transition from one type of energy to another.

Ms. JORDAN. Thank you, Congressman.

I did want to comment that I believe that climate change is an international issue. I used to serve on the Arctic Economic Council, which was under the Arctic Council. And the Arctic Council really looks at climate change as well as diplomacy with other Arctic nations.

Our biggest problem in the Calista region—we represent 56 villages—is unemployment. We have about a 26 percent unemployment rate. It is the highest in the Nation, I believe. I work with folks that are some of the most impoverished people in the Nation.

So, we need economic development to really stimulate the area, because there is no infrastructure, there are no roads; it is tundra. People use diesel fuel to heat their homes and stoves.

I actually manage a grant called the Chumai grant under the Department of Energy, and we provide energy audits to those households and are measuring how high and how costly it is to have energy out in rural Alaska. And it is because there is no infrastructure. There is none. And there are no jobs.

So, for us, economic development is very, very important. And we do use fossil fuels, because that is what is available.

Thank you.

Mr. CASE. Thank you very much.

Mr. GALLEGO. Again, thank you to our panelists.

Thank you to all the Members that have attended. We will be moving to a closing statement.

I hope we have all gained some valuable insights into the real-world effects of climate change on indigenous peoples and their communities and what they are doing to combat and adapt to those impacts.

However, tribes are wrongly shouldering too much of the burden on this front. The Federal Government must live up to its trust responsibility and provide the resources the tribes deserve to address climate change impacts.

In the meantime, as we have heard, tribes are often left scrambling to patch together funds from various state and Federal grants and to dig deep into their own pockets.

I know there are proposals already offered by my colleagues that would start to address these issues, and I hope that we can work together to advance real legislative solutions to what we have heard today.

In closing, let me again thank the witnesses for their valuable testimony and time, and the Members for their questions.

The members of the Committee may have some additional questions for the witnesses, and we will ask you to respond to those in writing.

Under Committee Rule 3(o), members of the Committee must submit witness questions within 3 business days following the hearing, and the hearing record will be held open for 10 business days for these purposes and for the responses.

If there no further business, without objection, the Subcommittee stands adjourned.

[Whereupon, at 3:19 p.m., the Subcommittee was adjourned.]

[ADDITIONAL MATERIALS SUBMITTED FOR THE RECORD]

WRITTEN TESTIMONY OF J. MICHAEL CHAVARRIA, GOVERNOR OF THE SANTA CLARA PUEBLO

Introduction

Thank you Chairman Gallego, Ranking Member Cook, and members of the Subcommittee for this opportunity to testify on the critically important issue of climate change and its impact tribal communities like the Pueblo of Santa Clara. My name is J. Michael Chavarria and I am the Governor of the Pueblo of Santa Clara, located in north-central New Mexico. I also serve as Chairman of the Eight Northern Pueblos Council, Inc. and Vice-Chair of the All Pueblo Council of Governors (APCG). In the last decade, Santa Clara has had five Presidential Disaster Declarations: three by the request of the State of New Mexico and two directly by the Pueblo after the Stafford Act was amended. Overall, the ability to directly request Presidential Disaster Declarations has given Santa Clara Pueblo greater control over our own disaster relief efforts. My community has faced numerous natural disasters whose impacts and severity have been heightened, in part, by the increasing effects of climate change on our natural environment.

Climate Change Poses an Existential Threat to Our Pueblo Beliefs and Identity

The Pueblo of Santa Clara is certified as a National Historic Landmark under the National Historic Preservation Act (16 U.S.C. § 470 *et seq.*; NRHP ref. #74001199). As such, our Pueblo is recognized as a finite, irreplaceable resource. The land and its natural resources form the essence of who we are as Pueblo People across generations: our origin stories are rooted in its geographic features, our contemporary life finds sustenance in its flora and fauna, and our future generations will shape their identity and dreams in the light of its sun-drenched plateaus. This intimate relationship is replicated in indigenous communities across the country. For all of us, climate change poses a disconcerting and tangible threat to the continued existence of our traditional practices and unique cultural identities. My testimony focuses on the experience of the Santa Clara Pueblo and its multi-generational effort to restore our forests and watershed after the devastating Las Conchas wildfire.

Federal Trust Responsibility and Environmental Justice

The Federal Government has a solemn trust responsibility to protect the interests and welfare of pueblos, tribal nations, and Native communities—including from the harmful and increasingly dangerous effects of climate change. Changes in vegetation cover, the adequacy of water supplies, and the frequency and intensity of wildfires, among other natural phenomena, impact the short- and long-term well-being of our tribal members. In 1994, President Clinton issued Executive Order 12898, which directs all federal agencies to make achieving environmental justice part of their missions. Accordingly, as agencies work to fulfill the federal trust responsibility, they must take into consideration the drivers and ongoing needs of environmental justice in Native communities.

Background on the Las Conchas Wildfire

Historically, the Santa Clara Canyon and watershed have provided timber, pasture, traditional, economic, and recreational resources for our Pueblo. The Santa Clara Creek watershed occupies a vast majority of our Reservation lands and is home to many of our Pueblo members. Our infrastructure, governmental services, and economic activities are concentrated in the downstream end of the Creek near its confluence with the Rio Grande. Countless traditional cultural sites occupy this landscape.

In the summer of 2011, the Santa Clara Pueblo was devastated by the Las Conchas Fire, then the largest wildfire in New Mexico history. Although mercifully no lives were lost and no homes at Santa Clara were burned, we still saw our

traditional and treasured homeland and spiritual sanctuary, the Santa Clara Canyon, practically destroyed. It is estimated that more than 16,000 acres of our forestlands were burned. Together with the lands that we lost in the Oso Complex Fire of 1998 and the Cerro Grande Fire of 2000, over 80% of our forests and an immeasurable part of our cultural heritage has been destroyed.

In addition, the fire burned thousands of acres of traditional lands located outside of our reservation that contain cultural sites and resources of great importance to us. This area encompasses our lands of origin, the P'opii Khanu—the headwaters of our Santa Clara Creek, as well as numerous cultural and traditional sites. In addition, the loss of the forest is devastating to wildlife and wildlife habitat, recreational resources, and to the purity of our water—which we use for irrigation and many traditional purposes. (*See* Attachment 1 for fire impact on Santa Clara watershed.) Throughout this tragedy, the Santa Clara People have shown grit and determination to persevere on the long road to recovery so that while this generation may never see the canyon in its glory again, that will not be said of the next generation.

Contribution of Climate Change to the Disaster

Climate change played a significant role in heightening the severity of the Las Conchas fire, along with several factors that contributed to its spread. At the time of the fire, it was reported that drought conditions in the Southwest caused living trees in the canyon to have a lower moisture content than the wood that you would typically buy at a lumberyard. This is a result of drought conditions in the Southwest that the scientific community continues to associate with climate change. In addition, higher temperatures in general create more conducive conditions for wildfires. While drought and wildfires can be a natural part of life, the severity and frequency of these phenomena are intensified by climate change.

- According to EPA and National Research Council research, an annual temperature increase of just 1.8°F could result in *four times* the number of wildfires in New Mexico every year.[1]
- Higher temperatures affect the retention of water in plants and soil, as well as in reservoirs and streams, which creates a more conducive environment for the rapid spread of wildfires.
- Increasing temperatures also degrade the quality of ecosystems making it difficult for native species to flourish, thus, hindering recovery efforts and leaving the area vulnerable to invasive species.

Climate change was not the only reason this fire was so devastating. The forest had become unhealthy, with excessive undergrowth and too great a tree density, making conditions ripe for an intense fire that would kill the mature trees. As a part of managing the impact of climate change, we must manage the conditions in our forests.

Increased Risk of Flooding due to the Fire and Climate Change

All five of the Pueblo's Presidential Disaster Declarations have involved infrastructure damage stemming from catastrophic flash floods. Three of the Declarations were made by request of the State of New Mexico and two were made by the Pueblo after the Stafford Act was amended. Flooding has wiped out existing water control structures within the canyon, destroyed once-pristine native cutthroat fish habitat, impacted roads, taken away culverts, and damaged the traditional cultural properties of our sanctuary.

Because the Santa Clara Canyon has been stripped of its vegetation, the area has a heightened risk of flooding and landslides. Over 50% of the Santa Clara Pueblo watershed burned during the Las Conchas fire. Because of the high severity of the burn, there has been a dramatic reduction in the infiltration rates in the burned area and the soil is now what is hydrophobic. This has resulted in a four- to eight-fold increase in runoff and sediment/debris flow into the Santa Clara Creek, posing a threat to the lives and safety of the people of Santa Clara Pueblo and increasing the potential for widespread property damage. The channel through Santa Clara Pueblo no longer has the conveyance capacity necessary to safely pass large post-fire flows. Hundreds of residential structures including several public structures are at risk from flood and debris flows if no action is taken immediately. (*See* Attachment 2 on the potential flood risk zone to Santa Clara for a 10-year event.)

An average monsoon season storm one inch rain event over 8 hours on August 21, 2011 led to intense flooding and the emergency evacuation of Santa Clara and

[1] "The Age of Western Wildfires," Climate Central at 9 (Sept. 2012), *available at* https://www.climatecentral.org/wgts/wildfires/Wildfires2012.pdf.

US Army Corps of Engineer personnel. This rain event resulted in a Presidential Disaster Declaration. As the Department of the Interior, Interagency Burned Area Emergency Response ("BAER") Team noted, the intense flames from the fire burned trees and vegetation off the steep slopes of the canyon and heated the soils causing severe damage to the natural resources of the area and placing the downstream tribal members of the Santa Clara Pueblo at risk to extreme flooding. The post-fire watershed effects were rife for massive landslides and debris flows which occurred on August 21, 2011. The event produced massive debris (including boulders) and severe mud flows to the canyon bottom. The canyon reservoirs were overwhelmed by this average rainfall event and filled with sediment. Flood protection emergency measures put in place after the Las Conchas fire were inches away from being compromised. It is important to note that this storm was an isolated thunderstorm over a small portion of the Santa Clara watershed (one drainage) and not over the entire watershed. Another similar event occurred in July 2012, destroying much of the recovery undertaken over the prior year. If the rain event of August 21, 2011 had occurred over the entire post-fire watershed, our Pueblo would have been devastated.

Further, in November 2013, Santa Clara Pueblo became the first tribal government to request and receive federal disaster recovery assistance under the National Disaster Recovery Framework (NDRF). The Federal Emergency Management Agency used the NDRF to create a comprehensive federally-led strategy for the Pueblo to identify all possible actions that would build the community's resiliency to future flooding. The NDRF provided the Pueblo with an opportunity to effectively develop recovery strategies for our respective areas.

Heightened Human Health and Environment Impacts

The recent natural disasters have raised numerous interrelated short and long-term concerns for Santa Clara and nearby tribal communities, almost all of which are further complicated by climate change. The environmental impacts of the disasters include water quality deterioration from ash, debris, and sediment changes that affect fisheries, wildlife, flora, and agriculture. The destabilized ecosystem also poses a physical safety risk due to erosion and shifting or falling trees and boulders. Runoff from the Santa Clara Creek also flows into the Rio Grande, which affects downstream communities like Santa Fe, Albuquerque, and our neighboring Pueblos who all rely upon these waters for municipal water sourcing. Ash contamination and sediment transport have impacted these resources, while limiting water holding capacity in reservoir facilities. The U.S. Army Corps of Engineers has noted that sediment deposition from the Los Conchas Fire remains an existential threat to the holding capacity of Cochiti reservoir.

In terms of human health, the effects range from physical impacts from the smoke and compromised environmental quality to deep emotional strain caused by the unprecedented loss of or damage to our cultural and sacred sites. We are still processing how to recover from the loss of these places and the diminishment of animal and plant species that have been integral to Santa Clara cultural and spiritual practices for generations. Further, our community has taken on increased financial burdens in response to these disasters and changes in the environment to reinforce infrastructure, implement fire suppression measures, and support the work of our award winning Santa Clara Pueblo Forestry Department, among other expenditures.

Working to Mitigate the Risks of Climate Change at the Pueblo Level

Santa Clara has a highly regarded Forestry Department, numbering some 40 personnel. Santa Clara fire crews and equipment served on the front lines of the Las Conchas fire. We have a dedicated commitment to the maintenance and restoration of healthy forests on, around, and adjacent to the Pueblo. We work diligently to effectively and efficiently manage our natural resources for the safety of our community and property. For example, our work on installing fuel breaks on tribal lands was effective at stopping the spread of the Las Conchas fire in those areas. In areas that lacked proper management techniques, the land, trees, and wildlife were devastated. In the past decade, we have faced four forest fires that have threatened our forests—the Oso, Cerro Grande, South Fork and Las Conchas fires—and none of them originated on Pueblo lands. Although fate and climate change play their part, we have suffered horrible consequences largely due to the failure of others to properly guard in some fashion against causing a fire.

Tribal-Federal Partnerships

For several years, the Pueblo has worked to establish a partnership with the U.S. Forest Service under the Tribal Forest Protection Act to address the long-term health of Forest Service lands around our reservation. Further, the Pueblo is in

negotiations with the U.S. Park Service to assume responsibility for federal functions in managing the Valles Caldera National Preserve, which is adjacent to our Pueblo in the Jemez Mountains. Each of these efforts is founded on the desire to strengthen tribal sovereignty and advance land management practices for the protection of our resources and community. As part of managing the impacts of climate change, the Pueblo is and must remain an active leader in the management of our forestlands.

Forest Restoration and Recovery

The Pueblo is also engaged in the complex process of forest regeneration and recovery in the canyon with a variety of federal and state partners. As we work to develop forest resiliency to the future effects of climate change, our efforts have taken into account research on the effect of climate change on forest regeneration, including a study of the Greater Yellowstone Ecosystem undertaken by the University of California—Merced.[2] The study predicts that the expected rising temperatures caused by climate change could increase the frequency of large wildfires in Yellowstone to an unprecedented level. The study also predicts that the increased occurrence of wildfires will alter ecosystems, resulting in "fewer dense forests and more open woodland, grass and shrub vegetation, with forests becoming younger, the mix of tree species changing and some forests failing to regenerate after repeated fires. This would affect the region's wildlife, hydrology, carbon storage and aesthetics. These conditions are already present in our forestlands and local ecosystem.

Other climate change related stressors are expected to further complicate our forest and ecosystem regeneration efforts going forward. These include an increased severity of droughts, the introduction and proliferation of invasive species, soil degradation, and habitat fragmentation. Alone, each of these issues could cause significant damage to our fragile ecosystem and watershed. Together, they pose an alarming threat to our future. Take the tamarisk, for example. The tamarisk, or salt cedar, is an aggressive invasive species that can uptake nearly 200 gallons of water per day.[3] It displaces native vegetation and destabilizes local habitats. This directly impacts avian and other species that depend on native vegetation for breeding and sustenance.[4] As a result of climate change, the tamarisk is expected to expand its geographic distribution throughout the southwest and other regions. When compounded by the increasing scarcity of water and increasing severity of weather events, tamarisk and other invasive species have the capacity to severely hinder forest restoration efforts in the Santa Clara Canyon and watershed.

Conclusion

In New Mexico, and across the Southwest, we have experienced the harmful effects of major wildfires, most recently the truly devastating Camp Fire in California. The ecosystems and well-being of our environment are being dramatically affected and sometimes permanently altered with each new occurrence. At the Pueblo of Santa Clara, we need only look out from our backyards to see the fundamental changes wrought by natural disasters heightened by climate change on the Santa Clara Creek and Canyon ecosystems. Never again in our lifetime will we see our traditional and treasured homeland and spiritual sanctuary, the Santa Clara Canyon, as we have known it. It will take generations for our community and lands to recover from the devastation of this fire and, because of climate change, it is not clear how that future will unfold.

This is our only homeland; it is the place we have been entrusted with since time immemorial. We devote the resources we can to the healing of our land and the protection of our community, but we do not have the resources to do it alone. The Federal Government must take steps to effectively manage the meta-factors that drive climate change—such as worldwide deforestation, fossil fuel consumption, and greenhouse gas emissions—before it is too late. Acting on climate change today is a moral and legal imperative, essential to all of us as Pueblo People, Americans, and citizens of this world during a period of what now appears to be almost inevitable rapid climate change.

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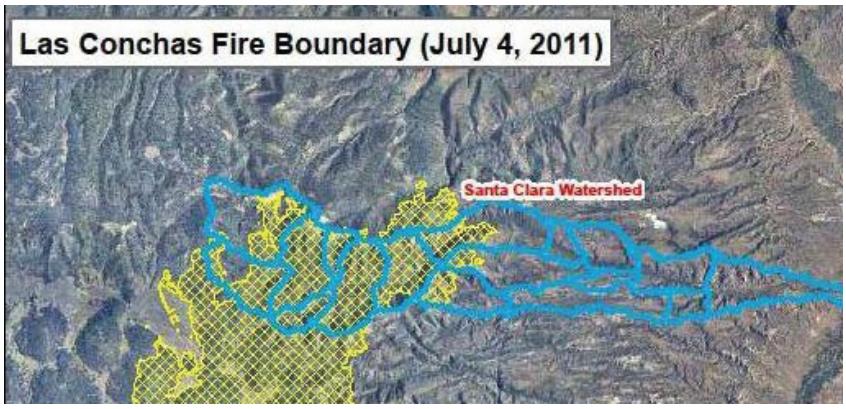
[2] *Please see* http://www.ucmerced.edu/news/study-climate-change-increase-yellowstone-wildfires-dramatically.

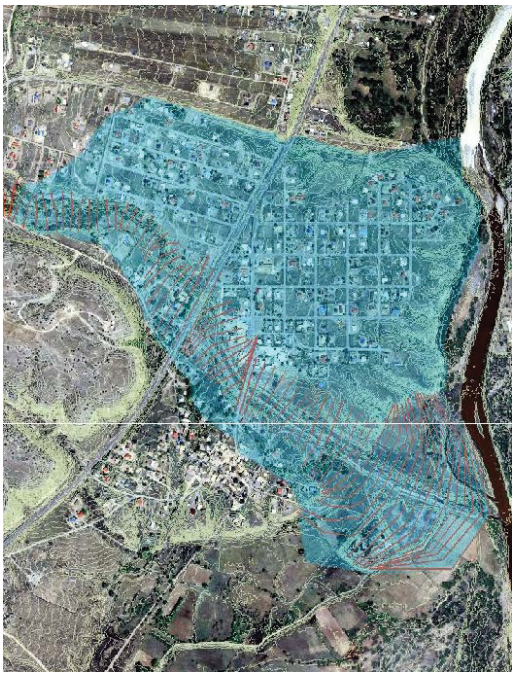
[3] "Saltcedar (*Tamarix*)," National Riparian Service Team, Bureau of Land Management (Dec. 12, 2007), *available at* https://www.blm.gov/or/programs/nrst/files/tamarisk_paper.pdf.

[4] "Tamarix spp. In: Fire Effects Information System," U.S. Department of Agriculture, Forest Service (Feb. 21, 2019), *available at* https://www.fs.fed.us/database/feis/plants/tree/tamspp/all.html.

Attachment 1
Impact of the Las Conchas Fire on the Santa Clara Watershed



Attachment 2
Potential Flood Risk Zone to Santa Clara for a Ten-Year Event



TESTIMONY OF UNITED SOUTH AND EASTERN TRIBES SOVEREIGNTY PROTECTION FUND

On behalf of the United South and Eastern Tribes Sovereignty Protection Fund (USET SPF) we write to provide the House Natural Resources Subcommittee for Indigenous People of the United States with the following testimony for the record of the hearing "The Impacts of Climate Change on Tribal Communities" held on February 12, 2019.

USET SPF is an intertribal organization comprised of 27 federally recognized Tribal Nations, ranging from Maine to Florida to Texas.[1] USET SPF is dedicated to enhancing the development of federally recognized Tribal Nations, to improving the capabilities of Tribal governments, and assisting USET SPF Member Tribal Nations in dealing effectively with public policy issues and in serving the broad needs of Indian people.

Human-induced climate change will have a lasting impact on Tribal lands, waters, and communities across the United States. USET SPF Member Tribal Nations have a unique historical experience, which factors in climate change impacts as well as options for climate change adaption.

South and Eastern Tribal Nations: A Historical Context

Current broad understanding of Tribal Nations and historical context within the United States stems from the 19th century, when the United States the country and settlers expanded westward. Tribal Nations were forced to sign treaties, cede large tracts of land, and reside on reservations yet were promised autonomy and support from the federal government to manage natural resources, education, and health care. Tribal Nations within the USET SPF region also signed treaties and were forced to cede lands. However, many USET SPF member Tribal Nations are "First Contact Nations" and faced 17th- and 18th-century local colonial governments and distant European nations at the onset of colonization of North America.

During the 17th and 18th centuries, colonial wars and disease also decimated Indigenous populations. After the United States was established, often the lands and rights acknowledged in colonial treaties or agreements east of the Appalachians were left to the states to either recognize and fulfill obligations or abolish. Within decades after establishment of the United States, a federal policy of removal was adopted, and many Tribal Nations whose aboriginal territories were in the Appalachians, Southeast, and Midwest were forcibly removed to western territories. For example, the "1830 Indian Removal Act" split entire Tribal Nations and families and forced tens of thousands of Indigenous people to reservations in Oklahoma.

USET SPF Tribal Nations, today, have persevered despite colonization and federal policies of assimilation, termination and other events that have unfolded over the past 400 years. Despite disease, warfare, and removal, our Tribal Nations have persisted and exhibited profound resilience. In environments considered harsh to European and American settlement such as the Gulf Coastal Bayous, the Everglades, the Appalachians, or the Northern Forests, Tribal Nations not only survived, but adapted and rebounded as communities and nations. Tribal communities even integrated into more populated landscapes, have maintained self-governance and distinct cultural identities tied to cultural and traditional homelands and family kinship systems. The 20th century witnessed a rebound in population of Indigenous communities within the USET SPF region and a resurgence of Tribal voices on a national platform to promote Tribal sovereignty and self-determination, management of natural resources on remaining Tribal lands that are now mere fractions of once held territories, and the restoration of Tribal lands lost to the colonies and early states.

The Fourth National Climate Assessment: Key Messages

On November 23, 2018, the Fourth National Climate Assessment (NCA4) was released by the U.S. Global Change Research Program (USGCRP). According to the USGCRP, the report *"focuses on the human welfare, societal, and environmental*

[1] USET SPF member Tribal Nations include: Alabama-Coushatta Tribe of Texas (TX), Aroostook Band of Micmac Indians (ME), Catawba Indian Nation (SC), Cayuga Nation (NY), Chitimacha Tribe of Louisiana (LA), Coushatta Tribe of Louisiana (LA), Eastern Band of Cherokee Indians (NC), Houlton Band of Maliseet Indians (ME), Jena Band of Choctaw Indians (LA), Mashantucket Pequot Indian Tribe (CT), Mashpee Wampanoag Tribe (MA), Miccosukee Tribe of Indians of Florida (FL), Mississippi Band of Choctaw Indians (MS), Mohegan Tribe of Indians of Connecticut (CT), Narragansett Indian Tribe (RI), Oneida Indian Nation (NY), Pamunkey Indian Tribe (VA), Passamaquoddy Tribe at Indian Township (ME), Passamaquoddy Tribe at Pleasant Point (ME), Penobscot Indian Nation (ME), Poarch Band of Creek Indians (AL), Saint Regis Mohawk Tribe (NY), Seminole Tribe of Florida (FL), Seneca Nation of Indians (NY), Shinnecock Indian Nation (NY), Tunica-Biloxi Tribe of Louisiana (LA), and the Wampanoag Tribe of Gay Head (Aquinnah) (MA).

elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." The report includes a chapter on climate change and Indigenous peoples as well as discussion on climate change and Indigenous peoples in other regional and sectoral chapters. The NCA4 acknowledges Indigenous peoples in the United States as, "*diverse and distinct political and cultural groups and populations*" and affirms, "*Though they may be affected by climate change in ways that are similar to others in the United States, Indigenous peoples can also be affected uniquely and disproportionately*." The NCA4 Chapter 15 "Tribes and Indigenous Peoples," provides three key messages regarding climate change impacts and Indigenous peoples. The key messages are listed below with subsequent comments pertaining to Tribal Nations within the USET SPF region.

Key Message 1: *Climate change threatens Indigenous peoples' livelihoods and economies, including agriculture, hunting and gathering, fishing, forestry, energy, recreation, and tourism enterprises. Indigenous peoples' economies rely on, but face institutional barriers to, their self-determined management of water, land, other natural resources, and infrastructure that will be impacted increasingly by changes in climate.*

Tribal Nations across the United States have regained the management of natural resources for over 100 million acres of Tribal lands. However, USET SPF member Tribal Nations have substantially smaller Tribal land bases from which to assert direct jurisdiction and management of natural resources. This means our Tribal Nations must work with state, municipal, and non-Tribal federal jurisdictions to address climate change impacts on natural resources of cultural and economic significance beyond Tribal lands. Institutional barriers arise as the interests and management plans of non-Tribal jurisdictions often do not align with Tribal priorities or cultural values at best, or at worst, Tribal Nations are not even included in local and regional plans that would have implications on their natural resources and areas of cultural significance. Often fish and wildlife, wild foods, medicinal plants, and places of cultural significance, some of which may be outside of Tribal reservation or trust lands, are impacted by climate change. For some USET SPF Tribal Nations, the Tribal reservation or trust lands have been reduced to one square mile or smaller, and climate change impacts to these vulnerable land bases pose serious threats to Tribal cultures and lifeways. Finally, one of the greatest threats of climate change will be migration of species and shifting of ecosystems beyond Tribal lands or even beyond Tribal regions, rendering the fixed political boundaries and territories of present day Tribal lands unconnected to long held traditional lifeways.

Key Message 2: *Indigenous health is based on interconnected social and ecological systems that are being disrupted by a changing climate. As these changes continue, the health of individuals and communities will be uniquely challenged by climate impacts to lands, waters, foods, and other plant and animal species. These impacts threaten sites, practices, and relationships with cultural, spiritual, or ceremonial importance that are foundational to Indigenous peoples' cultural heritages, identities, and physical and mental health.*

Many of the places that have significance to the cultural heritages, identities, and physical and mental health of Indigenous peoples from Tribal Nations within the USET SPF are located off Tribal reservation or trust lands. In many instances, places of cultural significance are now located within national parks, monuments, wildlife refuges, and sea shores, or state parks, forests, or private lands. While climate change impacts the ecosystems, water, and landscapes of these places, our Tribal Nations continue to struggle with non-Tribal jurisdictions for access to these places for activities of cultural, spiritual, or ceremonial importance. USET SPF member Tribal Nations and their citizens often find themselves in a position of having to request access to locations of cultural significance to partake in cultural activities they have been engaging in for thousands of years. Loss of access to these places impacts both the physical and mental health of Indigenous peoples and has been doing so for many years. Climate change impacts do threaten sites, practices, and relationships with cultural, spiritual, or ceremonial importance which are foundational to Indigenous peoples, yet current barriers to access and a lack of a meaningful role in the climate adaptation planning process of these areas compounds the issue.

Key Message 3: *Many Indigenous peoples have been proactively identifying and addressing climate impacts; however, institutional barriers exist in the United States that severely limit their adaptive capacities. These barriers include limited access to traditional territory and resources and the limitations of existing policies, programs, and funding mechanisms in accounting for the unique conditions of Indigenous communities. Successful adaptation in Indigenous contexts relies on use of Indigenous knowledge, resilient and robust social systems and protocols, a commitment to principles of self-determination, and proactive efforts on the part of federal, state, and local governments to alleviate institutional barriers.*

The impacts of the 2012 northeastern summer drought and heat wave as well as coastal flooding from Hurricane Sandy respectively prompted the St. Regis Mohawk Tribe and the Shinnecock Indian Nation to complete climate change adaptation plans for their Tribal lands, waterways, and communities. Other Tribal Nations within the USET SPF region have followed suit through exploring climate change adaptation options and opportunities to fund climate change adaption activities. Often departments within Tribal Nations such as natural resource or cultural preservation departments take the lead, but not exclusively as Tribal emergency management or economic development programs have also explored climate adaptation options. The same institutional barriers of limited jurisdiction and access to traditional territory or places of cultural significance remain factors in Tribal climate adaptation planning. Funding climate change adaptation also remains a challenge because federal natural and cultural resources funding can be very sector, species, or place specific whereas Tribes are concerned about the health of the whole system. Many Tribal managers are in the position of pursuing multiple grants and searching for funding from different sources with varying objectives required in order to address larger climate change impact on their Tribal Nations. Federal funding for climate change adaptation is also at the whims of United States executive and congressional political power shifts. Opportunities available this year may not be available next, hobbling a consistent or long-term climate change adaption plan.

Climate change adaptation may also mean placing lands into trust to provide communities safety from sea level rise and to provide Tribal Nations access to species of cultural importance whose ranges have shifted due to climate change. 21st century court cases, such as the 2009 *Carcieri* decision with the Narragansett Indian Tribe and the *Littlefield* et al. 2016 with the Mashpee Wampanoag Tribe, challenge the ability of Tribal Nations to have lands taken into Trust by the Bureau of Indian Affairs even when those lands are on cultural domains or aboriginal Tribal territories. Thus, if a location becomes uninhabitable or ecosystems with cultural significance shift due to climate change Tribal Nations face difficulties if adaptation responses mean to relocating or re-acquiring lands that provide access to cultural resources.

Conclusion

Successful adaptation for USET SPF member Tribal Nations will rely on use of Indigenous knowledge, resilient and robust social systems and protocols, and a commitment to principles of self-determination. However, it will also require the acknowledgment from federal, state, and local governments that the impacts of early colonial and United States history have created many of the institutional barriers USET SPF member Tribal Nations face today in adapting to climate change. Should you have any questions or require further information, please contact Mr. Kitcki Carroll, USET SPF Executive Director, at KCarroll@usetinc.org or 615–495–2814.

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